The National Locksmith

The National Locksmith®

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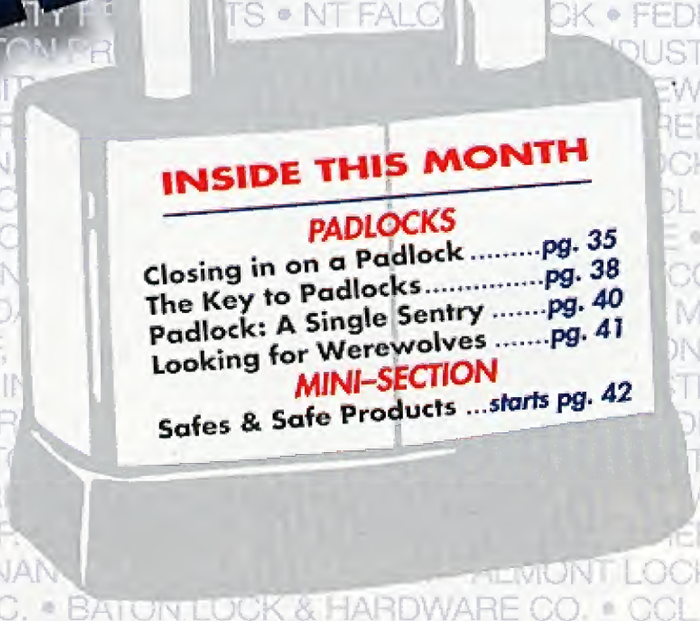
March 1994
Volume 65, No.3

MORE PAGES, MORE ARTICLES... MORE INFORMATION!

CODES: NEW GM Series pages 84-91

NEW... EVERY MONTH...
Test Drive
Product Review
See back page!

Padlocks



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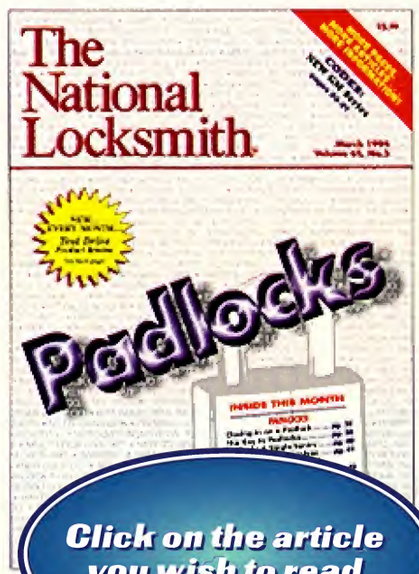


Click on the article you wish to read

From th… smith and security profes… padlocks are an integral yet silent partner in sales , security and collecting. Follow as we reveal some of the ways padlocks are rated and used.

COMMENTARY

Are you taking our Security Tests? Get with the program!

Marc Goldberg
Editor/Publisher

Loads of readers have been participating in our Security Certificate Program. They have been reading the test articles each month, and have been submitting the tests which we print four times per year.

If you haven't been taking the tests, let me remind you how the program works. Each month we print three test articles. One is on general security, one on automotive, and one on electronic security. Then, each quarter, we print a test section in the magazine covering the previous articles.

There is a fee of only a couple of dollars to take the tests. By entering the program, you receive a personalized certificate with your name imprinted on it. Then, for each test you pass, you receive a gold seal to place on your certificate.

By this time, a number of you will have completely filled your original certificate. If you have taken, and passed, each of the tests we printed, then your certificate is all filled in at this time. If you have filled your Security Test Certificate, you now qualify for a Certificate of Achievement in Continuing Education.

To receive this personalized document, all you have to do is send us a photocopy of your original certificate with all the spaces filled with gold seals. Enclose a check for $5.00 (for postage and handling) and a copy of your business card. When we receive this from you, we'll send out your Certificate of Achievement.

Also, you may still continue to take the tests printed this year. (There is a test section included in this issue.) However, you will need to obtain a new Security Test Certificate on which to place your additional gold seals.

To receive a new Security Test Certificate, simply fill out the card on the test section, and mark the box which indicates that this is the first set of tests you are taking, and that you need to be supplied with a Certificate. There is a $5.00 charge for the new one we will send you.

If you haven't yet taken any of our tests, there's no time like the present! It's simple. All you have to do is take the tests, using the articles mentioned as your study material. Fill out the tests and return them with the small fee. Bingo! You're in the program. There is a test section in the center of this issue. Why not grab a pencil and do it now?

This is the month we've all be waiting for! *Crime Prevention* hits the stands in a couple of weeks! Many of you have already ordered your own copies to use in promoting your shops. Remember, you will be able to imprint your name and address on the cover of each one. By dropping the copies off around town, you will be leading business right back to your door. Your copies will be shipped to your shortly.

If you have not yet ordered your copies of *Crime Prevention*, do it now! There are still some copies available, but the supply is getting short, and we will run out of them before too much longer.

I like to call *Crime Prevention* your instant marketing program, because there is no easier way to present a professional message to the public about what it is locksmiths do. If you want your customers and prospects to know more about your business, then you have to tell them. *CP* does the job for you professionally and economically. Get your order in today. See page 11 for details.

Here's a tip to make your copies of *Crime Prevention* help you do even more business. Print some coupons or flyers, and insert them into your copies. You'll see more business than ever come through your door!

Marc Goldberg

LETTERS

Comments, Suggestions and Criticisms

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length. Please address your comments, praise, or criticism to Editor, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

New Jersey Reader Okays Alarm Legislation

Dear Marc:

This letter is in response to a letter from Mr. William Timmann of the Master Locksmith Association of New Jersey.

Mr. Timmann is to be commended for his efforts in urging other professional locksmiths in New Jersey to get involved with one of the locksmiths associations in New Jersey and to become informed on issues that affect their livelihoods. Licensing is certainly one such issue.

Mr. Timmann's letter, however, contains blatant misstatements of facts that are both damaging to working relations with other groups and fails to point out the real urgency regarding this issue.

The fact is that there already is a law that makes it illegal for locksmiths and others to perform the installation of or service to access control systems, electric strikes, exit alarm devices, magnetic locks, electric gates, door annunciators, or work with any other device or system with a potential of more than 10 volts. According to the New Jersey Electrical contractors Licensing Act,, any person performing the above work must be a New Jersey licensed electrical contractor.

Further, any such installation work can only be performed after the issuance of a New Jersey Uniform Construction Code (UCC) permit. The Electrical contractors Licensing Act and the UCC both contain provisions for stiff penalties for violations such as doing work without permits and performing work without a license. Unlawful activity may also be grounds for revocation of a license or refusal to issue a license or refusal of application for any new license not yet enacted.

It is not the intent or effect of the licensing bill endorsed by the New Jersey Burglar and Fire Alarm Association to exclude locksmiths from any activity they are engaged in. The bill, in its present form, as amended and if enacted, would regulate any person doing burglar or fire alarm or other electronic security system work.

Any person doing such work for three of the last five years would simply need apply to receive a license. Others would be required to submit to an examination within two years. This bill would in fact, provide a viable way for locksmiths and alarm companies alike to engage or continue to engage in activity that they are not legally allowed to do now.

By working together instead of being at odds, we can accomplish our common goals before a professional locksmith or professional alarm company is barred from getting a license.

There is an urgency. Let's get it together soon.

Robert Shoremount, Chairman
NJBFAA Legislative Committee
New Jersey

New Jersey Reader Questions Alarm Law

Dear Marc:

Our association, The Master Locksmiths Association of New Jersey, has received a letter which indicates that you were copied. I do not understand Mr. Robert Shoremount's stance in this letter and feel I must respond.

First, he knows full well that he stood in front our assemblage two months ago to discuss this proposed bill. When it was suggested that the proposed burglar alarm bill did not seem to affect locksmiths he, with his own lips, said that the intention of the committee proposing the bill was that it would affect locksmiths. When questioned as to why the wording did not seem to suggest that, he answered that in their interpretation it did and furthermore once enacted, the bill would be interpreted by the board and they would provide the necessary controls.

According to my information he has indicated in several meetings that the game plan is to get the bill passed and then use the committee and appointed officials to interpret the law as they feel it should be. He said on more than one occasion that if the locksmiths support the bill to get it is passed they will see to it that the locksmiths are then included or excluded as necessary. Well please excuse me, if I feel from the tone of his letter that we could be just as quickly regulated out of existence if we "support the bill to get it passed" and then depend on the largess of the alarm industry to protect the locksmiths.

Secondly and even more astounding, he suggests in this letter that it is currently "...illegal for locksmiths and others to perform the installation of or service to access control systems, electric strikes, exit alarm devices, magnet locks, electric gates, door annunciators, or work with any other device or system with potential of more than 10 volts... Further, any such installation work can only be performed after the issuance of a New Jersey Uniform

construction Code (UCC) permit."

The implication here I assume is that locksmiths do not have the ability to become properly licensed to install such equipment nor, and I am not clear if the implication is they can't or won't, get the required permits. Well it may come as a surprise to Mr. Shoremount, but my LOCKSMITH company and others I know are licensed electrical contractors and attempt to follow the applicable laws in our business.

Additionally, it would appear that Mr. Shoremount feels that alarm installers can install those things listed by him on the previous page. In fact the New Jersey law indicates only that alarm installers are exempt from the 10 volt rule for work as defined in section 2 of the exemption. That definition is:

"(b) 'Burglar alarm means a security system comprised of interconnected series of alarm devices... which emits an audible, visual or electronic signal indicating an alarm condition and providing a warning of intrusion.... and (c) Fire alarm...'"

When then alarm industry installs items from his list it is just as much of a law breaker as the locksmith industry, with the exception of 'exit alarm devices' and then only if they exceed 10 volts which most do not. To install non-alarm equipment that exceeds 10 volts you must be a licensed electrical contractor.

Mr. Shoremount was president of the New Jersey alarm association and as such he should know, as most of us do, that the chances of an alarm business being a licensed electrical contractor and/or acquiring the proper building permits are about the same as those of the locksmith industry. I would suggest that before casting disparaging remarks about another industry all would be best served by his checking the alarm industry's own "glass house."

I also wonder at the statement that "Any person doing such work for three of the last five years would simply need apply to receive a license." Why would the alarm industry want to force any locksmith, access control, stereo, climate control, electrician or other business who has and may wish to continue to install door bells and electric strikes to apply for an "alarm license." It has always been my impression that you best police your own industry when those involved (licensed) are of like mind.

I agree it would be best if we could work together on these issues, but in my opinion Mr. Shoremount's continued attacks and changes of position on these matters makes it impossible for me to see how our industry could support the alarm industry's actions.

I do agree that there is an urgency, but the urgency is for the locksmiths to protect their industry by banding together and defeating this bill.

Henry Printz, CML Trustee, ALOA
New Jersey

Technitips Make Job Easier

Dear Marc:

Many thanks to Robert Sieveking for keeping the Technitips professional, interesting, profitable and educational. Every month I learn something that makes my job easier. Some tips reinforce the knowledge I already have. Others polish and refine skill I have acquired. What may be common knowledge to many smiths like the Mercedes ignition removal tip submitted (Dec. 93) by G. Watts of England, has unlocked the mystery of a difficult problem.

The new year is upon us with new challenges and opportunities. Kudo's to *The National Locksmith* for servicing the growing educational needs of locksmiths the world over.

Leo Koulogianes
Tennessee

Editor's Note: Bob Sieveking has recently passed the Technitips column over to Jake Jakubuwski. Bob did a great job and we also expect good things from Jake. Keep those tips coming!

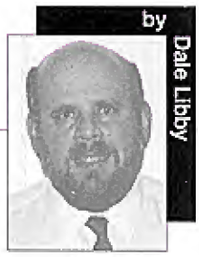
Sharing TNL With Others

Dear Marc:

Would like to take a minute of your time to just let you know how much I look forward to your magazine every month. I read it from front to back trying to absorb all the info in it. I also wanted to let you know that I make copies of a lot of articles and carry them in my van manuals for references when the need arises. I read your Commentary in the October issue and decided that if you didn't mind I was going to borrow from you once again. Actually I guess I just about copy it word for word from your article. You don't mind do you? I haven't mailed any copies out yet as I felt that I had better check with you first. It just seems like such a great idea for me to extend my customer quality department by sharing your advice.

Ray Landry
Wyoming

Editor's Note: Ray, go ahead and use the October Commentary about Crime Statistics. Just put "Reprinted With Permission From The National Locksmith*" on it.*



TRANSFERRING CONCEPTS

"There is one basic reason that transferring of readings attained through drilling a hole in a safe door or chest is important."

Ah, yes, the wonderful art of transferring. Most times it works wonders. For the sake of clarity, I will only discuss Arithmetic Locational transferring, and write another article about non-(Arithmetic) Numeric transferring.

What is the basic concept of transferring and why do we as professional safe technicians need it? There is one basic reason that transferring of readings attained through drilling a hole in a safe door or chest is important. That, of course, is to get the safe door open by relocating the relative readings to the actual drop in point so the lever will drop into the gates and the combination bolt will withdraw.

One can always drill at the exact drop in point, but this can be very dangerous on some locks, especially if they cannot be replaced or parts are not available.

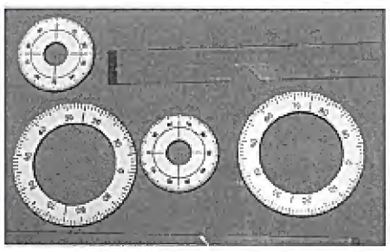
Here is a true story. A person called and wanted a price on opening a Mosler chest, and from his description of the unit, I knew that it had to be either a CD-120 lock or a KBC series "Flapper" lock. Both of these locks are almost impossible to replace, so when drilling, much care must be taken.

I informed him that this was the case, and that only a professional should drill this unit. He did not like my price and said he would go elsewhere. About a week later I got a call from the same person (I've got caller I.D.) and he wanted to buy a "Flapper" lock, or just the inside parts. I told him that I did not sell lock parts for Mosler unless I did the job to begin with.

He was incensed, and wanted to know what kind of professional safe man I was. I asked him what kind of professional safeman drilled and destroyed his lock, and why couldn't the person who butchered his lock repair it? He hung up without answering. I feel he got what he deserved.

That is the main purpose of learning how to transfer readings. Drill at a location in the lock that will not destroy any of the combination lock parts, look in with a scope, take the relative readings, and move them to the drop in point.

There are a few tools needed to successfully transfer readings. They include some sort of numeric indicators, a pointer, and a good light source, scope (otoscope or borescope) and a pencil and paper. The tools that I now use for transferring are templates made by LeRoy "The Wasp" Edenburn. These are shown in photograph one.



1. Transferring kit including two large and two small numbered templates. Attaching pointer is not shown.

They include two large templates, and two smaller numbered circles with numbers on them. They are magnetic and will stick to the face of the safe door. Also included, but hard to see, are two plastic transparent rulers used to locate exact drill points.

Not shown is a pointer that attaches to the end of the combination spindle after the dial has been pulled.

First we drill a hole away from parts of the safe lock that will provide a good sighting hole to see the edge of the wheels and the gates in the wheels and driver, if possible. We will use a Sentry round door floor safe head for this purpose. Photograph two shows the head with the dial still attached. By removing the screw located under the disc in the center of the dial, we can expose the base of the safe.

LeRoy has included a forward and backward reading template, both for the professional. The backward (or reverse reading) units are for the "Techni-Purist" and will not be discussed here. Before removing the dial, and mounting the templates, mark the 0, 25, 50, and 75 numeric locations on the face of the safe to insure proper alignment of the template. (*See photographs 3 and 4.*)

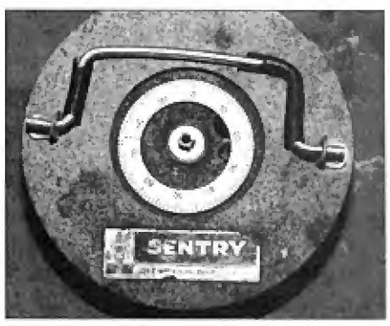
Attach the pointer and we are ready to take initial readings before transferring. We will take the readings at the exact hole location we drilled.

If our hole is drilled at 15, we mark that down as the original position of the properly placed pointer. This is just for reference number one. Looking into the hole, we get our three readings (or four, depending on the lock) and directions of rotation, either right, left, right or left, right, left.

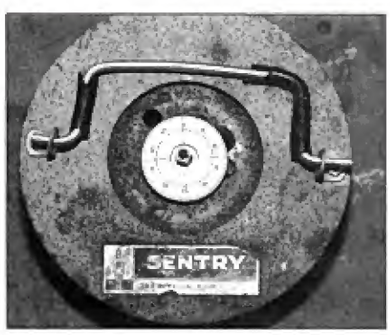
Now we must transfer these readings to the drop in position. Before we explore the "*Great Answer*" to all arithmetic transferring, we must know the drop in point. We can determine this if we know the lock that we are working on and where it is, or by observing the drive wheel or drive cam. If we can see it through the hole, all we do is turn the spindle and see where (or more properly feel) the location where the fence bumps the gates.

By noting the position of the pointer away from the drilled hole, we have located the position to transfer our gate readings to. For example, the pointer bumps at 90, so in effect, we must move our gates that line up at 15 on the template to 90 on the template. We are not going to move the template now, but the actual gate readings.

2. Sentry safe head.



3. The large template attached to the safe.



4. The small template attached to the safe.

Here is the magic of arithmetic readings. If we want to move the gates clockwise or right, we will call that ADDITION. If we want to move the gates to the left, or counter clockwise, we will call that SUBTRACTION. The rule for transferring, then, is ADD to SUBTRACT and SUBTRACT to ADD.

This makes sense to me, and to you eventually. In our theoretical example, we want to move the gates left (SUBTRACT) 25 numbers, so we would ADD 25 numbers to our readings to move the gates (back) to the drop in position. For instance, if our readings at the hole were 10, 75, 40, we would now dial the following readings to the hole position, 35, 0, 65, and back to the drop in. This should open the lock, in theory. One might have to add or subtract a few numbers to make it exact before the lock will open.

Continued on page 92

NEWSMAKERS

New Products and Industry News

Abus Introduces 83 Series Padlock

Abus Lock company recently introduced the 83/45 "Convertible" Rekeyable Pin Tumbler Padlock. This new "maximum security" padlock is designed for simple conversion to either a key retaining or non-key retaining mechanism in seconds; all it takes is a Phillips head screwdriver. The Abus Z-bar makes the difference. With the Z-bar and the 83/45 becomes non-key retaining.

The 83 Series padlock reduces the inventory required, now one lock can serve both key retaining and non-key retaining requirements. the 83/45 also gives the locksmith the convenience of keying into the most popular locking systems on the market today, thus providing the flexibility necessary to build a totally new padlock system for any installation.

For *FREE* Information
Circle 423 on Rapid Reply

Series 300 Padlock By Federal Lock Company

Federal Lock Company's Series 300, 2-1/2"/63.5mm wide square dimension padlocks offer a heavy duty hardened solid steel lock body for maximum protection. Quality chrome plating, double ball locking mechanism, stainless steel locking balls, heavy duty hardened steel shackle provide maximum security and resistance to environmental elements. A 1-1/4" wide horizontal shackle clearance allows versatility in applications that require a wide horizontal shackle clearance (gates, etc...). A rekeyable and changeable six pin brass cylinder makes servicing and key changes an operational ease.

Available in 1", 2", and 3" vertical shackle lengths for added versatility.

For *FREE* Information
Circle 424 on Rapid Reply

Gardall Group II Electronic Locks

Gardall Safe Corporation is pleased to announce that they are now manufacturing safes with Group II electronic locks

Safes with electronic locks are the choice for applications at home or in a commercial environment. Businesses that have high turnover are often excellent prospects for electronic locks due to the ease of changing combinations. Further, the electronic lock would be well suited to individuals with arthritis, impaired vision or that simply do not want to dial a combination lock.

Look for additional new products from Gardall Safe Corporation in the near future.

For *FREE* Information
Circle 425 on Rapid Reply

Kramer Boys Locksmith Supply

In 1946, Alice and Morris Kramer went into the locksmith supply business. The tradition of nearly 50 years of service to the locksmith industry is being continued by the three Kramer grandsons. Called the Kramer Boys, the company stocks products by MAG, Lucky Line, Ferum, Alarm Lock, Lori, ESP, All Lock and others.

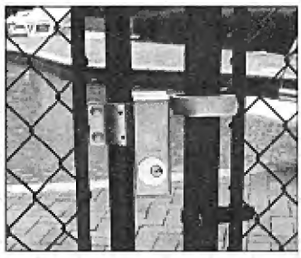
According to the Kramer Boys, "We bring you the same great service and dedication to customer satisfaction that we learned from our father and grandfather." Thus, three generations of Kramers have been serving the locksmith industry.

The spacious, modern, computer-controlled warehouse, located in Trenton, NJ, will ensure prompt shipping of orders in the Kramer tradition. Each aspect of the business is personally overseen by a Kramer. For more information, call (800) 222-2692.

For *FREE* Information
Circle 376 on Rapid Reply

Quick Lock-Fence Gate Locks

International Locking Devices, Ltd. announces the addition of a brand new Heavy Duty Dead Bolt Fence Gate Lock to their line of gate locking and safety devices.



The new Dead Bolt Gate Lock is constructed of heavy duty galvanized steel to withstand the rigors of heavy use and all weather conditions. Double Cylinder (brass) Dead Bolt locks allow the unit to be locked or unlocked from either side. Four keys are provided with each lock unit for customer convenience and additional keys can be duplicated at local key shops.

A universal gate collar system permits this lock unit to be installed on all existing and new gate installations. Installation is simple and fast (five minutes) and no special tools are needed.

For *FREE* Information
Circle 377 on Rapid Reply

Lockmasters® Keys

Safe technicians now have a fast supply source for 6800 and 2200 safe lock keys. Duplicates, replacements and random cut keys for these Sargent & Greenleaf and LaGard locks are now available from Lockmasters, Inc. of Nicholasville,

Kentucky.

This exclusive service is offered on 6800 series Key Op® lock keys made by S & G and the new style 2200 series by LaGard. Special equipment recently installed at Lockmasters means that now these unique keys can be ordered with same day turn-around.

These keys can be duplicated from existing keys or by code. To allow technicians to service their customers with on-the-spot re-keying of either locks, Lockmasters also generates "random" cut keys. Codes are supplied with random keys.

For *FREE* Information
Circle 378 on Rapid Reply

Drop Safes By McGunn Safe Co.

McGunn Safe Company has developed a new way to help secure stores and trucks. The new Drop Safe series by McGunn is a family of rotary hopper safes that will accept packages that, until now, were too bulky to

fit in conventional drop safes.

The "rotary hopper" is an opening at the top of the safe that works with a rotating cylinder that operates simply by turning a handle. As the opening in the cylinder rotates, the package drops into the safe. The opening is large enough for bulky bank bags, but small enough to prevent fishing.

The Drop Safes come in a variety of sizes and models, including the little Drop Safe 20, that is perfect for anchoring into delivery vehicles and semitrucks. Having a safe anchored into your truck affords drivers security and peace of mind. One of the Drop Safes is sure to improved your cash handling situation.

For *FREE* Information
Circle 379 on Rapid Reply

National Cabinet Locks For Coin Machines

National Cabinet Lock has a broad line of locks to protect revenues in all kinds of coin-operated machines, such as vending machines, games and parking meters.

The National Cabinet Lock product line includes pin tumbler locks and KeSet® high-security locks. National Cabinet Lock can supply the right lock to meet any combination of design, budget and security

requirements. Both interior and exterior types are available.

Hard-to-pick pin tumbler locks are available for virtually any lid, hinged door, sliding door or drawer configuration. They are available with such options as keyway dust shutters and replaceable cylinders.

For *FREE* Information
Circle 380 on Rapid Reply

STI's Entry Alarm/Chime

Safety Technology International, Inc. is announcing a third member of its "STI Stopper Line for Security Professionals". It's a programmable entry alarm/chime called "Entry Guard" This inexpensive, professional-grade device can be mounted on any door or window and it tells you instantly with a chime or piercing alarm when the protected unit is opened. Entry Guard is easy to install, highly effective and extremely reliable, states STI.

Continued on next page

SAFETY TECHNOLOGY

Continued from previous page

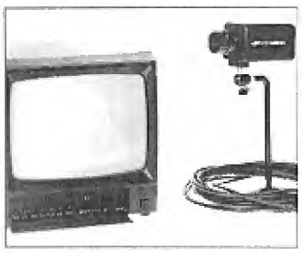
Entry Guard (STI500) features simple installation with no wiring required and a two-side sensor allows for left or right hand use. It also features a user-friendly programmable security code up to 12 digits. For easy exit and entry, there is a activation delay of about 10 seconds.

A "PANIC" button allows for direct and immediate activation in case of emergencies.

For *FREE* Information Circle 381 on Rapid Reply

Samsung Introduces Observation System

Samsung Optical America has introduces a black-and-white CCD CCTV observation system featuring a 9" monitor and two-way audio. The model SOS-1Y system includes a CCD camera, 12mm lens, camera mounting bracket/stand, monitor and pre-terminated 65-foot cable. Installation is as simple as plugging in power to the monitor and



plugging in the cable to the monitor and camera.

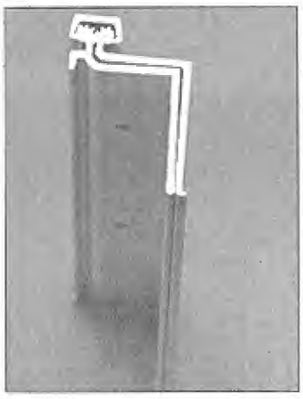
The monitor features a built-in four-position sequential switcher, VCR/video/audio inputs and video/audio outputs. The CCD camera features an electronic iris. Up to four cameras may be connected to the system.

Audio output at both camera and monitor is one-half watt (at 8 Ohms), allowing adequate levels for listening and responding. A "talk" button and volume control are included on the monitor. Audio automatically corresponds to the camera selected.

For *FREE* Information Circle 382 on Rapid Reply

Select Products Limited Fire Rated Hinges

Select Products Limited announces an addition to the product line of an SL-41 swing clear mortise hinge with a Warnock Hersey Intl. fire rating of 20 minutes for wood or steel door in steel



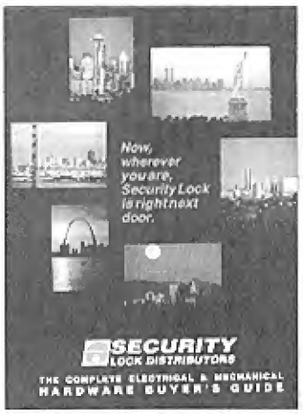
frames in drywall or masonry wall construction.

The SL-41 has application for use in new construction, specifically hospital patient room doors and handicap classroom doors, and in renovations requiring door and/or frame replacement.

For *FREE* Information Circle 383 on Rapid Reply

Security Lock Distributors Catalog

Security Lock Distributors has just issued their new catalog containing complete in-depth information on the extensive line of mechanical



and electronic locking devices and accessories which they stock.

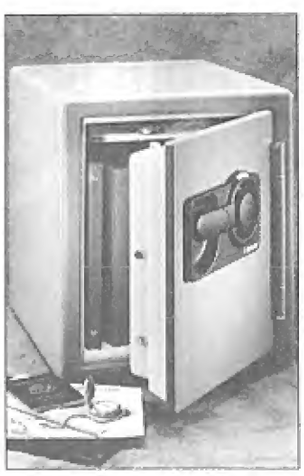
The catalog contains data on thousands of security products and accessories including detailed technical descriptions, dimensional information, function and finish data, specifications, application suggestions, and ordering data.

Security Lock Distributors is a major stocking factory distributor for: Adams Rite; Arrow; Detex; Folger Adam; Locknetics; Simplex; Von Duprin and other major manufacturers.

For *FREE* Information Circle 384 on Rapid Reply

Sentry Fire Safe Model 3100

Designed to protect irreplaceable documents and keepsakes during the most severe home or office fires, the new Sentry Fire Safe® Model 3100 offers two full



hours of UL tested fire protection of up to 1850 degrees Fahrenheit. Most home fires reach a temperature of around 1000 degrees Fahrenheit.

In addition to superior fire protection, the new Model 3100 is theft-resistant and features six live-locking bolts, optional floor/wall bolt down system, pry-resistant butted seams, flush door design, and privacy shroud around dial.

The fire and theft resistant safe is the only unit available on the market today which also safeguards its contents from dampness with a moisture resistant interior.

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Vindicator Lock For Safes

The new Vindicator Lock reduces losses due to employee theft by controlling access and providing detailed records of each opening. It also provides increased resistance to robbery and burglary. The Vindicator Lock is simpler and faster to use than ordinary combination locks, more secure than other electronic locks and provides tangible cost savings.

The Vindicator Lock is a microprocessor-based, electronic lock that controls access to the contents of a security safe. It provides advanced features, such as controlling multiple locked compartments (up to five), a detailed audit trail (4500 events), time lock settings, time delays, and flexible authority levels. Access to the safe is additionally secured by using both an electronic Touch Memory "key" and a Personal Identification Number (PIN). All of the electronics are protected against electrostatic discharge and use non-volatile memory.

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Test Article #43

GENERAL SECURITY

To be tested in this issue
Details in front of issue

DOOR KNOBS: MAKING THE GRADE

by Giles Kavalage

This intent of this article is to review ANSI A156.2-1989. This standard has been used for reference.

ANSI is the abbreviation of American National Standards Institute, Inc. One of the purposes of ANSI is to "set" standards for products for use in the United States so that various manufacturers can produce products in accordance to or exceed industry standards, service personnel can meet specific standards in their servicing of equipment and materials, and potential buyers - including architects - can specify products that will meet their needs. Most manufacturers will refer to ANSI. There are standards for loose leaf binders, Compressed Gas Containers, Steel Tanks, Screw conveyors, Office chairs, computers, fire extinguishers, cardboard boxes - the list seems endless.

ANSI rarely, if ever, develops their own standards. Usually the interested trade develops its standard for ANSI approval and adoption. ANSI standards of door hardware of interest to the locksmith trade has been sponsored by the Builders Hardware Manufacturers Association, Inc. and is included in ANSI A156.

Included in ANSI A156 are the standards for butts and hinges (ANSI/BHMA A156.1), bored and preassembled locks and latches (ANSI/BHMA A156.2), exit devices (ANSI/BHMA A156.3), door closers (ANSI/BHMA A156.4), auxiliary lock and associated products(ANSI/BHMA A156.5), architectural door trim (ANSI/BHMA A156.6), template hinge dimensions (ANSI/BHMA A156.7), Overhead door holders (ANSI/BHMA A156.8), cabinet hardware ((ANSI/BHMA A156.9), power pedestrian doors (ANSI/BHMA A156.10), cabinet locks (ANSI/BHMA A156.11), interconnected locks (ANSI/BHMA A156.12), mortise locks and latches (ANSI/BHMA A156.13), sliding and folding door hardware (ANSI/BHMA A156.14), closer holder release devices (ANSI/BHMA A156.15), auxiliary hardware (ANSI/BHMA A156.16), hinges and pivots (ANSI/BHMA A156.17), hardware materials and finishes (ANSI/BHMA A156.18), power assist and low-energy power operated doors (ANSI/BHMA A156.19), strap and tee hinges and hasps (ANSI/BHMA A156.20), thresholds (ANSI/BHMA A156.21), electromagnetic locks (ANSI/BHMA A156.23) and delayed egress locks (ANSI/BHMA A156.24). These standards are available in their entirety from ANSI, 11 West 42nd Street, New York, New York, 10036.

ANSI/BHMA A156.2 lists the standards for bored and preassembled locks and latches, Series 2000 and 4000 locksets. In locksmith terms, Series 2000 preassembled locksets includes what is commonly referred to as Unit/Mono locksets, as manufactured by Corbin/Russwin and Yale. Series 4000 bored locksets are locksets commonly known as cylindrical locksets, as manufactured by most lock manufacturers. Series 2000 locksets are available only in Grade 1, whereas

series 4000 locksets are available in Grades 1, 2 and 3.

ANSI lists the functions of locksets. F36 through F48 apply to the functions of Series 2000 preassembled locksets whereas F75 through F93 apply to bored locksets. Most of the Series 2000 locksets share a function with the Series 4000 counterparts. Functions have been given a "common name" for description purposes. This name does not necessarily require its physical placement. As an example, an F86 Storeroom lock may be mounted on a store room in a building - or it may be mounted on an exterior common entrance door of an apartment building or on a door where access is to be granted by activation of an electric strike.

Included in ANSI/BHMA 156.2 are various performance tests which locksets must meet to be Grade Certified. The tests can be broken down into these categories, Operational, Strength, Cycle, Material, and Finish. Examples of operational tests include items such as turning torque to retract the latch, projection of latch bolt, projection of latch bolt. Strength tests examples include torque to locked knob (with no key), strength of lockset with axial load, vertical load test, bolt strength test. Cycle tests represents turning of the knob or lever for various cycles and re-testing certain other tests at specific intervals. Examples of material tests include dent and impact tests. Finish tests include salt sprays and other corrosive tests. The grade of lockset usually determines the severity of the test.

OPERATIONAL TESTS

Torque to retract latchbolt by knob or lever.

Depress deadlatch plunger (if applicable). Slowly apply a torque load to the outside knob of an unlocked lockset until the latch is fully retracted. Maximum torque for all knobs is 9 lbf-in., 28 lbf-in. for levers, for all grades.

Repeat in opposite direction (except for levers).

Reapply test for inside knob or lever.

Torque to retract latchbolt by key.

Depress deadlatch plunger (if applicable). With the lockset in the locked position, slowly rotate a torque load to a key until the latch is fully retracted. Maximum torque for all locksets is 9 lbf-in.

Repeat test in opposite direction if lockset allows such operation.

If lockset function is keyed inside, reapply test for inside knob or lever.

Minimum projection of latch bolt when plunger is depressed.

With lockset in locked position and deadlatch plunger depressed, depress latch bolt to dead lock position. Projection of the depressed latch bolt from the center line of the lock front to the outer edge of the latch bolt will not be less than:

Grade 1:	11/32"
Grade 2, 3:	1/4"

Minimum projection of dead latch plunger to dead lock latch bolt.

With the lockset in the locked position and slowly depress plunger while testing latch for dead locking feature. When latch dead locks, measure the projection of the plunger from the edge of the door to the end of the plunger where it first engages the deadlocking feature. The projection will not be less than:

Grade 1:	5/16"
Grade 2, 3:	7/32"

Force to latch door.

With the door open just to the outer edge of the strike, use a force meter, 1" from the lock edge of the door on center line with the latch to close the door until the latch has fully entered the strike hole (the deadlatch plunger, if applicable, does not enter the hole). The force will not exceed:

All Grades:	4.5 lbf

STRENGTH TESTS

Torque test to locked knob or lever.

Apply turning force to locked knob or lever (without key). Lock must remain locked after the minimum torque has been applied:

	Knobs	Levers
Grade 1:	300 lbf-in.	450 lbf-in.
Grade 2:	150 lbf-in.	225 lbf-in.
Grade 3:	120 lbf-in.	180 lbf-in.

Repeat applying torque in the opposite direction.

Axial load test.

Apply a load dynamometer to the outside knob or lever along its axis 90o to the face of the door to press the latch against the door strike. Minimum axial load:

Grade 1:	500 lbf
Grade 2:	300 lbf
Grade 3:	250 lbf

Apply same test to inside knob or lever.

Vertical load test.

Vertically apply a load dynamometer to the outside knob or lever 90o to its axis at a load minimum:

Grade 1:	360 lbf
Grade 2:	250 lbf
Grade 3:	150 lbf

Apply same test to inside knob or lever.

Warped door test.

Apply a 50 lbf force perpendicular to the door 1" from the lock edge on the center line of the latch as to apply force to the latch against the strike front. Apply torque to the outside knob or lever. Maximum torque to fully retract the latch will be:

	Knobs	Levers
All Grades:	45 lbf-in.	70 lbf-in.

Reapply test in opposite direction (except levers).

Reapply test to inside knob or lever.

Bolt strength.

Apply a load dynamometer perpendicular to the face of the test door 1" from the lock edge on the center line of the latch in the direction of opening. The latch will be fully engaged in the strike. Increase the loading until minimum loads are achieved. Latch must hold.

Grade 1:	1200 lbf
Grade 2:	800 lbf
Grade 3:	600 lbf

Static bolt load.

For locks with deadlatches, the bolt shall resist forces of:

Grade 1:	150 lbf
Grade 2:	100 lbf
Grade 3:	75 lbf

Qualification requirements.

Upon completing the strength tests, excepting the warped door test, the locks must again be tested for the operational tests of torque to retract latch by knob or lever and torque to retract latch by key must be reapplied. Results for retracting latch by knob or lever:

	Knobs	Lever
All Grades:	11 lbf-in.	34 lbf-in.

Retracting latch by key:

All Grades:	11 lbf-in.

CYCLE TESTS

The test lock will have passed all operational tests and the warped door test before starting the cycle test.

Grade 1:	800,000
Grade 2:	400,000
Grade 3:	200,000

Test locks with knobs will be operated at no more than 10 times per minute for 100,000 cycles in one direction, then 100,000 times in the opposite direction. Lever handle knobs need only be operated in one direction. Either inside or outside knob or lever may be used.

After 50% of the cycles are completed, all operational tests and warped door test must be repeated and the following values must be achieved:

Knob torque max. All Grades: 11 lbf-in.

Lever torque max.: All Grades: 34 lbf-in.

Key torque max.: All Grades: 11 lbf-in.

Latch bolt projection minimum:

Grade 1:	17/64"
Grade 2, 3:	13/64"

Deadlatch plunger projection minimum:

Grade 1:	1/4"
Grade 2, 3:	11/64"

Force to latch maximum:

All Grades:	5.4 lbf

Warped door maximum:

Knobs:	All Grades:	54 lbf-in.
Levers:	All Grades:	85 lbf-in.

MATERIAL EVALUATION TESTS

Unlocked outside knob test.

Slowly apply torque to the unlocked outside knob or lever in accordance to the following grades:

	Knob	Lever
Grade 1:	250 lbf-in.	450 lbf-in.
Grade 2:	150 lbf-in.	225 lbf-in.
Grade 3:	120 lbf-in.	180 lbf-in.

Knob locks must be rotated to the above torque specifications in both directions while lever locks need be rotated in one direction.

After test completion, the maximum torque to retract the latch shall not exceed 11 lbf-in. for knobs and 32 lbf-in. for levers. To be successful, the lockset will operate in all respects.

Knob crush test.

Either knob shall be positioned in a tensile loading device and compressed with 1000 lbf.

Percent of Knob Deformation

Grade 1:	10
Grade 2:	25
Grade 3:	30

Maximum key torque at crush test completion

All Grades:	11 lbf-in.

Dead latch and strike impact test.

Using special test equipment, impacts will be applied to the deadlatch and bolt. Failure is defined as damage which will allow the lock mechanism to be opened.

Grade 1: Grade 2 req. + 2 blows of 120 ft-lb-f

Grade 2: Grade 3 req. + 2 blows of 90 ft-lb-f

Grade 3: 2 blows of 60 ft-lb-f

Rose dent test.

8 oz. projectile is dropped from a height of one foot in a drop tube onto the rose. Maximum dent is as follows:

Grade 1:	.075"
Grade 2:	.1"
Grade 3:	.15"

Outside rose deformation test.

Entry lock is mounted to simulate installation on a door. Compress a load on the horizontal centerline of the rose or assembly. The rose will not deform more than 10%. The amount of force to be compressed is as follows:

Grade 1:	650 lbf
Grade 2:	560 lbf
Grade 3:	450 lbf

Weather exposure test.

Non metallic knobs or levers will meet axial and vertical load strength tests after being exposed to 4000 hours of X-W weatherometer ultraviolet light.

Abrasion resistance test.

The surface thickness of outside knobs, levers and roses, including decorative or protective surfaces will be positioned under a stream of 100 liters of falling standard test sand so that they will be hit with as close to a flat surface as possible. The surfaces will not be reduced by more than the following thicknesses for grade:

Grade 1:	.005"
Grade 2:	.007"
Grade 3:	.009"

FINISH TESTS

The main purpose of finish tests are to provide for the quality control of the lock's appearance. All tests are the same for all grades of bored and preassembled locksets. Various tests include salt spray test, humidity test, pencil hardness test, and perspiration test.

Interestingly, ANSI A156.2 does not specify which finishes must be used. It is acknowledged that in the appendix that available finishes include BHMA 605, 612, 613, 625, 626, 628, 629, 630, 677, 680, 681 and 682. These finishes are covered more completely in ANSI/BHMA A156.18-1987.

Following is a chart of knob functions and their ANSI number.

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ANSI#	Grade	Function	Description
	1	Passage	Latch operated by either inside or outside knob.
F37	1	Privacy, Bed, or Bath	Latch operated by knob from either side.Exterior knob locked by button on inside, unlocked by turning inside knob or by emergency.release on exterior knob or by closing the door
F38	1	Patio/Privacy	Deadlatch operated by knob from either side. Outside knob locked by button on inside knob. Unlocked by turning inside knob or closing door. No emergency release on outside knob.
F39	1	Communicating	Deadlatch operated by knob from either side. Turn button on either side locks/unlocks knob on opposite side.
F40	1	Entrance, Store Room	Deadlatch operated by knob from either side except when outside knob is locked by turn button from inside knob. When outside knob is locked, deadlatch may be operated by key from outside or turning inside knob. Turn button must be twisted by hand to unlock outside knob.
F41	1	Entry	Deadlatch operated by knob from either side except when outside knob is locked by inside pushbutton. With outside knob locked, key from outside knob unlocks lock and releases pushbutton. Door remains locked if door is closed.
F42	1	Classroom	Deadlatch operated from knob either side except when outside knob is locked with key. When outside knob is locked, deadlatch is operated by inside knob or outside with key.
F43	1	Holdback	Deadlatch operated from either knob except when outside knob is locked by key. Deadlatch may be locked in retracted position with Outside knob may also be locked requiring access with a key. Inside knob will retract deadlatch.key.
F44	1	Store Room/Closet	Deadlatch retracted by key from outside or turning inside knob. Outside knob is always rigid.
F45	1	Apartment/Exit, Public Toilet	Deadlatch operated from either side except when outside is locked by key from the inside. When outside knob locked, deadlatch is retracted by turning inside knob or by key from outside.
F46	1	Store Door	Deadlatch retracted by either knob except when both knobs are locked by key from either side.
F47	1	Store Door	Latch is operated from either knob, Dead bolt is operated by a key from either side.
F48	1	Hotel Guest, Dormitory, Apartment Entrance	Outside knob is always rigid, deadlatch always operated from inside knob. Deadlatch operated by key from outside except when inside pushbutton is activated. When inside pushbutton is activated, all keys except emergency key is shut out from the outside. Push button operated exterior visual device in face of cylinder, indicating room occupancy. Turning knob or closing door deactivates shut out feature.
F75	1, 2, 3	Passage	Latch operated by either inside or outside knob.
F76	1	Privacy/ Bed/Bath	Latch operated by knob from either side. Exterior knob locked by button on inside, unlocked by turning inside knob or by emergency release on exterior knob or by closing the door.
F76	2, 3	Privacy/ Bed/Bath	Latch operated by knob from either side. Outside knob locked by inside locking device. Locking device automatically releases when inside knob is rotated. Alternatively, locking device may cause inside knob to be rigid when activated, but then, must be deactivated manually before inside knob can be turned. Emergency release on outside knob operates latch.
F77	1	Patio/Privacy	Deadlatch operates by knob from either side. Outside knob locked by push button or other locking device from inside. Unlocked by turning inside knob or by closing door.
F77	2, 3	Patio/Privacy	Deadlatch operates by knob from either side except if outside knob locked by inside locking device. Locking device automatically deactivates when inside knob is turned, or manually unlocked before latch can be retracted.

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F78	1, 2	Communicating	Deadlatch operated by knob of either side. Turn button or other locking device on either side locks and unlocks the opposite knob.
F79	1, 2	Communicating	Deadlatch operates from outside by knob and from the inside by thumb turn. Turn button or operating locking device locks both knob and thumbturn. Turn button or locking device must be unlocked by hand.
F80	1, 2	Communicating	Deadlatch operated by knob from either side. Each knob independently locked or unlocked by turning its key.
F81	1, 2, 3	Entrance, Store Room	Deadlatch operated by knob from either side except when outside knob locked by turn button or locking device on the inside. When locked, deadlatch operated by key on outside or turning inside knob. Turn button or locking device does not automatically release by turning inside knob or outside key.
F82	2	Entry	Deadlatch operated by knob on either side except when outside knob locked by inside push button or other device. When locked, deadlatch is retracted by key in outside knob or by turning inside knob. Turning inside knob releases inside push button. Push button does not release when door is closed.
F82	2, 3	Entry	Deadlatch operated by knob on either side except when outside knob is locked by inside lock device. When locked, deadlatch is retracted by key from outside which also unlocks inside locking device. Inside knob will always release locking device when turned, or will remain rigid until locking device is turned to the unlock position.
F83	1, 2, 3	Exit	Deadlatch operated from either knob except when inside turn button or locking device locks outside knob. Inside knob always retracts deadlatch. Turn button or locking device must be manually turned to unlock outside knob.
F84	1, 2	Classroom	Deadlatch operated by either knob. When outside knob locked by key from outside, deadlatch will be operated by key in outside knob or by rotating inside knob.
F85	1	Holdback	Deadlatch operated by either knob except when outside knob locked with key. Deadlatch may be held retracted by key. When deadlatch is not held retracted, rotating inside knob will retract deadlatch.
F86	1, 2, 3	Store Room, Closet	Deadlatch operated by key in outside knob or by turning inside knob. Outside knob is always rigid.
F87	1	Utility, Asylum, Institutional	Deadlatch is operated by key from either side. Inner and outer knobs always rigid.
F88	1	Apartment, Exit, Public Toilet	Deadlatch operated from either knob except when outside knob locked by key from inside. When locked, deadlatch may be operated by key from outside knob or turning inside knob.
F89	1, 2, 3	Exit Latch	Deadlatch only retracted by turning inside knob. Outside knob is always rigid.
F90	1, 2	Corridor	Deadlatch operated by either knob except when outside knob is locked by key in outside knob or by turn button or other locking device on inside knob. Inside knob always operates deadlatch. Rotating inside knob automatically releases push button or locking device. Closing the door automatically releases locking device or push button.
F91	1	Store Door	Deadlatch operated by knob either side except when both knobs are locked by a key from either knob.
F92	1, 2	Service Station	Deadlatch is operated by either knob except when outside knob is locked by inside push button or locking device. Key on outside, turning inside knob, closing door releases inside locking device or push button which unlocks outside knob - except when slotted push button or locking device is in locked position. Deadlatch always retracted by turning inside knob.
F93	1, 2	Hotel Guest Room, Club House, Dormitory, Apartment Entrance	Deadlatch always operated by inside knob. Outside knob always rigid or does not operate. Deadlatch operates by key from outside except when inside push button or locking device is activated. When activated, all keys except emergency keys are shut out and an indicator is exposed on the outside cylinder. Turning inside knob, closing the door or releasing the inside locking device deactivates the shut out feature.

Test Article #44

AUTOMOTIVE SECURITY

To be tested in this issue
Details in front of issue

AUTO OPENING: METHODS AND TECHNIQUES

With a basic understanding of the components involved in locking a door, we can now briefly cover the different opening methods.

PICKING

Picking has long been one of the locksmith's most noted trade skills. Movies and television have long glamorized picking open door locks. And without reservation, this can be an effective auto opening technique.

Most auto locks are relatively weak when it comes to close or tight tolerances between the working parts. This is to counter the severe environmental states in which these exterior locks exist. The loose tolerances, of course, favor using the picking technique, as the shearline is less discriminating than a tighter tolerance lock.

While picking is favorable for both pin and wafer tumbler style locks, wafer locks generally pick easier. Again, this is dependent on the skill and competence of the locksmith.

For picking pin tumbler locks, a rake, hook or diamond pick can be used. For wafer tumblers, a single or double pall pick is generally easier. Some locks, such as the General Motors sidebar lock, require special picking tools.

One major consideration in picking auto locks is the pressure applied to the plug from a return spring on the back of many locks. As the lock is being picked, not only are you fighting to apply just the right amount of tension to the tumblers, you are also fighting the return pressure of the spring. This spring also works against you should the lock be picked in the wrong direction. Even with the best plug spinner, reversing the spin of the plug is nearly impossible when fighting against a return spring.

Finally, before attempting to pick a lock, make sure that all the tumblers move freely. Picking a damaged lock is wasted time. Wafer locks often pick better after being lubricated with a silicone spray. Pin tumbler locks generally pick better without lubrication.

IMPRESSIONING

Impressioning, even though it may be a little more time consuming than other methods, does leave the customer with a finished or near finished key by the time the car is opened.

To make impressioning an auto easier, search your reference material for the tumbler configuration of the different locks on the car. Knowing whether and what tumblers are staggered (coming from the top and bottom) allows you to look for marks in the correct places.

Use an impressioning tool to hold the blank. Unlike a vice-grip pliers, this tool is designed to give the user a more controlled turning tension and "bump." And as any good impressioner can tell you, controlling these two factors can make or break an impressioning job.

Strictly this author's opinion, do not use a file to make the key. Locksmiths have been blessed with some of the nicest key cutting equipment in the world. Take advantage of it. Cut each impressioned space to the correct depth and then use a file to dress it. Using the cutter makes sure the spacing and depths are right on. Dressing each cut with a file afterwards, allows the impression mark to show up better.

IMPRESSIONING DANGERS!!!

From time to time, some manufacturers have used plastic to make the door lock. Early and mid 1980 Honda door locks for example, have a plastic plug. Impressioning these locks, and others utilizing plastic construction, can cause irreparable damage.

Another lock that is susceptible to damage from impressioning are ones using split wafer systems. While the past has limited split wafer technology to high security key systems, the present has seen the advent of split wafers being used in standard type keying systems. Toyota employs this system on several vehicle models. The General Motors 1993 Geo Prism uses the Toyota split wafer system for their locks. The future is sure to offer more cars using split wafer systems.

While impressioning is possible with split wafers, the propensity for damage is high. The thin nature of the half-wafer makes it a prime subject for bending when pressure is applied. If at all possible, use impression sparingly on vehicles with these systems.

WAFER READING

Like the previous two methods, wafer reading is a skill that increases with training and practice. Wafer reading is accomplished by looking into the lock's keyway and determining the bitting of the key by the position of each tumbler in the lock. The shortcoming of this technique is that it is applicable to wafer locks only, as the pins in a pin tumbler lock align evenly at the stop groove, making reading impossible.

There is only one warning for reading a door lock. Know what tumblers you are reading. Many door locks do not contain all of the tumblers for a given key code series. The 1991 Ford Escort, for example, has only six

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of the seven tumblers in the door lock (The first three spaces, while cut on the key, are not used anywhere in the vehicle). These tumblers are operated by cuts four through nine on the key.

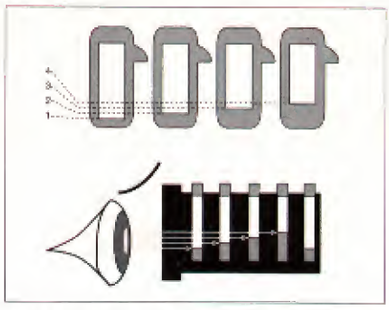
A beginning lock reader while looking into the lock may interpret these tumblers to be operated by cuts one through six on the key. If a key is cut using these spaces, it will not work, even if all the depths were read correctly.

Many foreign locks use all but one or two of the tumblers in order to create a master/submaster key system for the vehicle. The Volkswagen VB, HV and AH code series show ten cuts with three of them widened to accept a double tumbler in those positions.

The ignition of these VW vehicles has 10 tumblers, but the door only contains seven. Knowing the tumbler placement, then, is critical to reading the lock. (*See illustration 1.*)

KEY READING

More than once you will find yourself called out to a job and find that the keys of the car are laying on the front seat, floor, center console, dash board or in the ignition. All that is necessary to open the car is to read the key's bitting and cut a new key. In fact, this method is preferred to all others for a couple of reasons. Depending on the locksmith's reading ability, this method is simple and fast. And, because a correct key is being used, the chance of damaging the car is almost nil.



1. When reading a lock, make sure what positions are being read.

What will help us read a key? First and foremost is knowing the key's specifications for the vehicle being opened. Not only does this help identify the correct key when you are looking at it, it also indicates what equipment and supplies are needed to make a key.

Space and depth specifications are also very important in discerning the correct bitting of the key. For instance, you're reading a key off the front seat of a 1989 Honda Prelude. Looking at the key you can identify six spaces and four depths. You cut a key and it doesn't work. Why not?

The answer may lie in the fact that this vehicle's key is supposed to have eight spaces and six depths. Not knowing this beforehand, however, you cannot correctly read and cut the key and have to rely on another more complicated method of entry. Too bad!

Knowing the Maximum Adjacent Cut Specification (MACS) is an invaluable reference technique for reading keys. Often an unknown cut lies next to a known cut. If a MACS value exists, the depth of the unknown cut can be narrowed down.

Reviewing the code series' key bittings often reveal alot about how the key can be cut. For example, most of us locksmiths know General Motors' four rules for cutting GM keys: The bitting must add up to an even number, no two adjacent cuts are more than two depths apart (MACS of 2), there cannot be more than three consecutive cuts of the same depth, and no depth will appear more than four times in any bitting. While rules like this do not apply to all vehicles, when rules do apply it is an added tool in the arsenal of key reading.

So, even before going out to a vehicle, know the code series and key specifications that apply to that model vehicle. Manuals such as the *Automotive, Truck & Motorcycle Keyblank Identification And Cross Reference Guide 1992 Edition* by Silca offer code series and keyblank information based on year, make and model. Similar manuals are produced by Ilco and Baxter as well. Looking up what code series and keyblanks apply to a given vehicle allows you to be prepared with the correct cutting equipment, keyblank and spacing and depth specifications, all needed to read and make a working key.

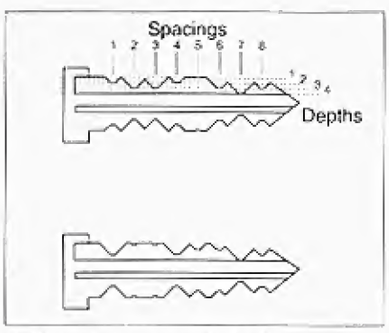
Other tools that are handy include a bright, focusing flashlight for night work, a monocle or opera glasses to

magnify the key, and, as always, some practice.

When reading a key, perspective and reference points are very important. Knowing the spacing and depth specifications for that key, you will need to pick a reference spot or spots on the key in order to determine the space and depth you are reading. For spacing, the shoulder is usually a good reference point. If the shoulder is worn or not present, use the tip of the key. Knowing how many spaces are used on the key, you should be able to look at any given point on the blade and determine exactly what space you are reading.

For judging depth use either the top of the blade or the top of the first groove as a reference point. For badly cut or worn keys it may be necessary to judge each depth in reference to another cut on the key.

As Murphy is the locksmith's closest (and seemingly, only) ally, you can count on the key being read to be so worn or badly cut that the spacing and depths cannot be determined. Again, this is why both knowing the specifications and practice are so important. (*See illustration 2.*)



2. Know the space and depth specifications and choose a reference point to read a key.

Practice reading keys by having an assistant place his/her keys on a table top. Then after researching for the depth and space specifications and without touching or getting too close, read the key. Practice this technique from different angles and different manufacturers.

Finally, have an assistant throw his/her keys in the car and do the same thing. Practice by having the key partially covered or turned to a difficult position

DOOR TOOLS

Okay. Now we've gotten to the part you've been waiting for - Door Tools. The wonderfully spectacular and magical tools that allow the user easy access to any vehicle.

As stated earlier, door tools are manufactured by several companies offering various forms of customer support and support materials. Some companies offer tools on an individual basis, allowing you to buy a tool for a particular application. Still, others offer several tools to open most vehicles you will run into. Many offer yearly updates for auto opening as well as auto service manuals and, of course, tools for opening and servicing autos.

Whatever company or companies you choose for obtaining tools, remember that each manufacturer has their own tool and entry techniques for each car. There are differences on technique and method among manufacturers, especially on late model vehicles. This is normal.

In any lockout situation where a door tool is needed there are three possible areas of attack: The lock or locking button, the linkage or bellcrank, and the latch. The tools used to attack these areas can be divided into In-The-Door and Inside-The-Vehicle tools.

As its name indicates, In-The-Door tools are meant to go inside the door. Here they will be used to manipulate the lock or lock pawl, the linkage or bellcrank, or make a direct attack on the latch. In-The-Vehicle tools on the other hand, enter directly into the vehicle compartment by circumventing the window and/or body seals. Here, the lock button or latch release handle are attacked.

Future articles will cover both methods. Starting with In-The-Door techniques for attacking the pawl, then the vertical linkage and horizontal linkage, the bellcrank and, finally, the latch. Then we will cover the three In-The-Vehicle techniques - Wing windows, under the window, and through the window.

Before we do, however, there are a couple of guidelines for using door tools.

First, always start working on the front passenger door. If other untrained people have been trying to open the door using tools they typically go to the driver's door. By going to the passenger door you are less likely to find damage that will make your job harder. Also, should you cause any damage and find that there is no time to make immediate repairs, the customer is not inconvenienced by a non-working driver's door. If you are familiar with a model or cannot find entry through the front passenger door, move to the rear passenger door.

Second, use a wedge and light whenever possible. Using these tools lessens the likelihood that you will damage the vehicle or unnecessarily disconnect the linkage rods or tear apart electrical wiring. By making a visual inspection first, you can detect whether damage has been done to the door before you even put your tools in the door, alleviating liability problems.

Third, once in the door, never force, bend or twist the tool or the linkage. If the tool or linkage do not move smoothly, evaluate the cause before applying more force!

Fourth, once the door is unlocked, do not move or remove the door tool until the door has been completely opened and the keys are removed from the inside. Moving or trying to remove the tool before this is done, may relock the door. Better this is done after the door has been opened and the keys retrieved.

Fifth, and last, once the door is open, check to make sure that all door functions operate. Use the customer's keys to check the door for locking and unlocking from the outside. Check interior manual/electric lock buttons and manual/electric window buttons to make sure they are operational. Don't leave until everything that operated on that door before you arrived, operates when you leave. Write down and advise the customer of any damage or operation problems. If you caused damage, fix it immediately. Do not leave yourself liable for future lawsuits and/or claims.

Next month we start covering the use of specific door tool attacks!

Test Article #45

ELECTRONIC SECURITY

To be tested this issue
Details in front of issue

BASIC VOM METER TESTING: VOLTAGE

Using the VOM or DMM for troubleshooting generally involves one of four types of measurements:

Voltage - Measuring the voltage along a circuit is typically the most common type of testing procedure. By taking measurements at specific parts of a circuit, the meter is used to check for shorts, voltage sources (transformers, power supplies, batteries), fuses, hardware operation, etc.

Continuity - Continuity is probably the next most common test performed. This test is used to determine correct lead/terminal connections, check for shorts in the system, check fuses, and check normally open and normally closed switches and contacts.

Current (in amps) - While not used nearly as frequently as voltage and continuity, current measurements are made to determine the draw of the loads in a circuit and check the soundness of a power supply or battery.

Resistance (in ohms) - This method is often used in troubleshooting an alarm or access control loop. When used, it is generally for testing the integrity of the electrical hardware or the resistance of a particularly long wire run. This measurement can also be used to check for shorts, burned up or shorted solenoids or coils, and bad or normally open or normally closed switches.

Rules For Making Measurements

Voltage - Voltage is always measured across the load and with the power on.

Continuity - Continuity is tested across the portion of the circuit or loop being tested after being disconnected from all voltage sources.

Current - Current is tested by placing the meter in series with the loop with the power on.

Resistance - To measure resistance, place the test probes across the portion of the system to be measured after it has been removed from the loop or circuit.

Common Voltage Measurements

First set your meter for the proper function and range. Remember to set the function for measuring either AC or DC voltage. If you are unsure, set the meter for AC and observe the needle during the testing. If the meter does not move, set it to DC.

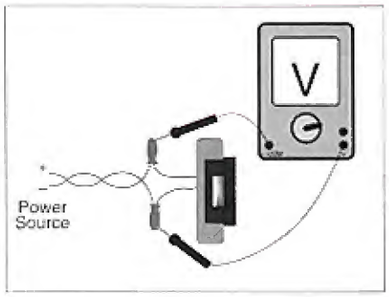
When measuring DC voltage watch the needle's direction as voltage is applied to the circuit. If it moves backwards and pins itself, reverse the test probes or change the polarity reversal switch.

Testing A Load: To measure the voltage of a load such as an electric strike, remove the strike from the door frame to expose the strike's wire leads, but *do not* disconnect it from the circuit or loop.

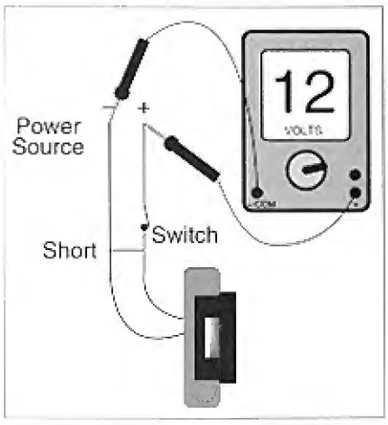
Place the meter's test probes onto each of the strike's wire leads. If it is a DC strike, check the polarity of the probes and place on the appropriate lead.

Apply voltage to the strike and read the meter. (*See illustration 1.*)

If the voltage reading is not at or near the voltage rating of the strike, the strike solenoid may be damaged, there may be a problem with the loop (short, bad or corroded terminals or connections, excessive loads, or incorrect wire gauge), or a defective voltage source.



1. When checking voltage the test probes are placed at both sides of the load and the power must be on.



2. Checking the voltage at the voltage source.

Testing For A Short: A short occurs when the two sides of a loop come into contact with one another or the loop has been broken. This can happen when wiring, while being pulled, scrapes up against a sharp edge, or when the wires are in an area where they are being constantly rubbed or twisted, removing the insulation.

To test for a short using the volt meter, make sure voltage is being applied to the loop or circuit. Place the meter's test probes on each side of the loop near the voltage source. (*See*

illustration 2.) If the meter reads on or about the voltage output rating of the voltage source remove the probes and move back to the first switch or load in that loop.

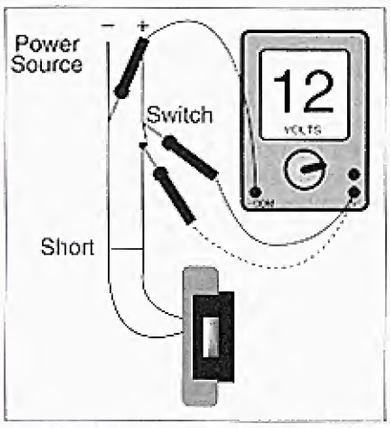
Again, place the probes on each side of the loop. First check the side of the switch nearest the voltage source. If the voltage reading is zero, the short is between the switch and the voltage source. If there is a voltage reading, check the other side of the switch (make sure the switch is closed or making contact). If the voltage reading here is zero, the short is probably occurring at the switch and it needs to be replaced. (*See illustration 3.*) If there is a voltage reading at this point, move further back in the loop and check another spot. (*See illustration 4.*)

When checking for shorts, it is most common to start from the far end of a circuit or loop and work towards the voltage source. This, however, is not necessary. In some cases, such as the example above, starting at the voltage source may be more practical, especially if the voltage source itself is at question. Regardless of the direction, looking for a short is a process of elimination and should be started from either the beginning or end of a loop. When you find a location where there is no voltage reading, the short will be between that location and the voltage source.

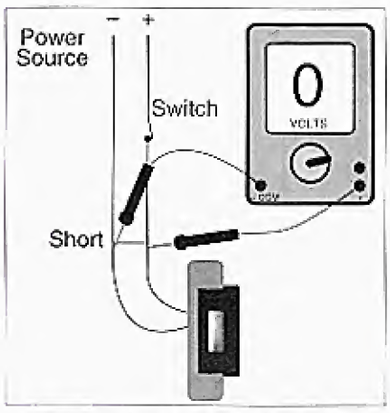
Test A Fuse: To test whether a fuse is good or not, place the meter's probes across, or on each side of a fuse that has power going to it (watch polarity). If the meter registers zero, the fuse is good. (*See illustration 5.*) If the meter indicates a voltage is present, the fuse is bad. (*See illustration 6.*)

The reason for these test indications is simple. Voltage is the potential difference between two points. One of the points contains an excess of electrons (negative) and the other side a deficiency of electrons (positive). When a meter is placed at these two points these electrons can then be measured.

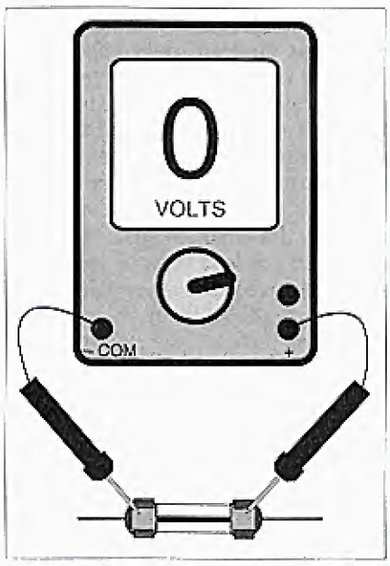
In a fuse that is bad, electrons cannot pass from one side to the next, therefore the meter will display this difference in potential as a voltage reading.



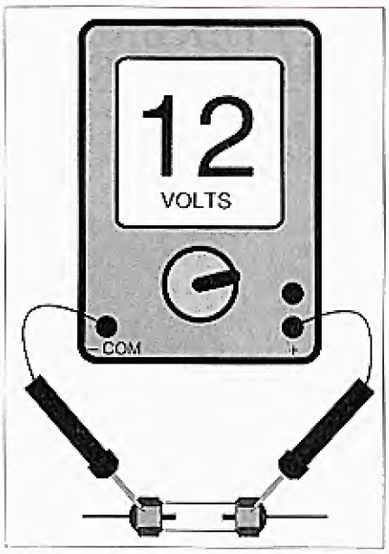
3. When checking for a short near a switch, read from both sides of the switch. Make sure that the switch is in the the closed position before checking the load side of the switch.



4. A short is detected when there is no voltage reading on the meter. The short exists somewhere between this point and the voltage source.



5. A good fuse shows zero volts when it is metered.

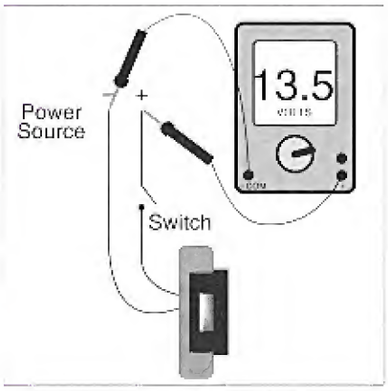


6. A bad fuse shows a voltage reading.

If the fuse is still good, the electrons are free to pass from one side of the fuse to the other and there is no electron difference from one side to the next. Therefore, because there is no potential difference between the two points, the meter will indicate zero.

Testing A Voltage Source: Unlike testing the voltage at any other part of a circuit or loop, the source of voltage needs to be tested differently. Too often, an inexperienced locksmith will test a transformer, power supply or battery by simply placing the meter's test probes on the output terminals of the voltage source.

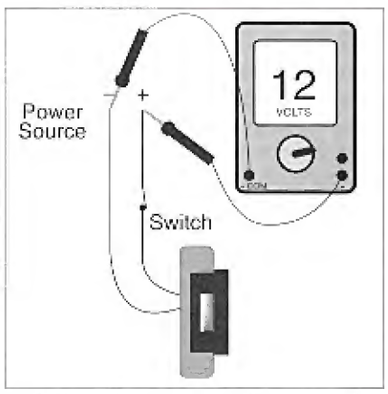
The voltage reading may or may not show the source to be bad. If it is below the rated output level for that source, then there is no question it is bad. However, when no load is applied to the source during testing, even a bad voltage source can look good. (*See illustration 7.*)



7. Even a bad source not under load can show the correct voltage.

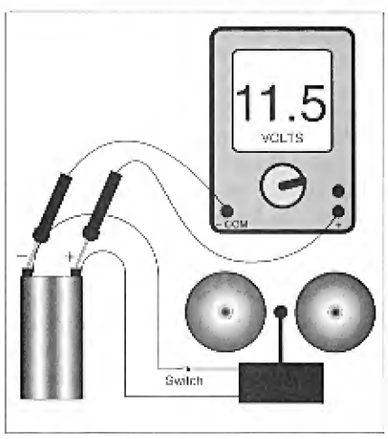
To test a voltage source place the meter's test probes on the source's terminals and apply a load; for an access control system, turn on the strike, for an alarmed exit device, sound the alarm, etc. It should be noted that the load applied should be the same voltage as the voltage source output rating (remember Kirchoff's Voltage Law, the voltage of the loads must equal the voltage of the source). For instance, if a 12 volt source is being tested, a 12 volt load must be applied. If a 6 volt source is being tested, a 6 volt load must be applied. If an excessive load is applied, the voltage reading from the voltage source will be below the output rating.

With the load applied, watch the indicating needle. The reading should be the rated output of the voltage source. For instance, a 12 VDC power supply or transformer without load may have an output reading of 13.5 volts. Under load, however, the supply voltage should not drop below 12 volts. If the voltage drops below the rated output there is a problem with either the voltage source (defective) or the load is excessive. (*See illustration 8.*)



8. A power supply or transformer tested under load should not fall below its rated output.

When testing a battery, continue the reading for at least one minute. If there is a significant drop after that time, the battery is bad. (*See illustration 9.*) When testing batteries, it should be noted that many factors will affect the reading including the battery type (gel cell, lead acid, Ni-Cad, alkaline, etc.), temperature, the age of the battery, the time and length of the last discharge, and more. No easy test can give a definitive answer on how good a battery is or how long it will last. This test, however, is typical for field testing most batteries.



9. Testing a battery must also be done with the battery under a load.

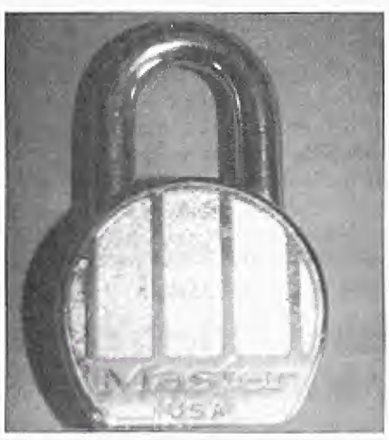
We will continue testing with the meter next month.

BEGINNER'S CORNER

The Master Round Body Padlock

by Eugene Gentry

The Master solid steel body padlock is an interesting padlock. (*See photograph 1.*) This one turned up at a mini-storage when a storage bill had not been paid. The owner called for an opening saying she could not cut it with a bolt cutter.



1. The Master solid steel body padlock.

This padlock is a monster in size, 2-1/2" wide, with the weight that goes with it. I first tried to pick it open without success, then considered the possibilities of drilling the plug. This is a high security padlock, and I was not sure if there was any guard or anti-drill pin inside that would prevent the drilling. It does have a cylinder guard on the bottom that leaves little room for a drill bit.

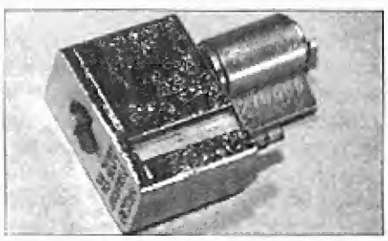
I used a small size bit in the corner of the cylinder guard, as close to the pins as I could get. The bit did go through the pins and as it finished the last pin, the torque of the drill turned the plug to the open position.

Back at the shop, I examined the padlock closely. (*See photograph 2.*) This is a rekeyable padlock with a solid

2. The disassembled lock.

steel body. A cylinder guard protects the five pin cylinder. The shackle, case hardened, measures 7/16" in diameter. The shackle can be replaced with a longer shackle if needed.

When you take this padlock apart, I suggest that you do it over a tray as the small parts will fall out when you tip the lock.



3. The cylinder guard and cylinder.

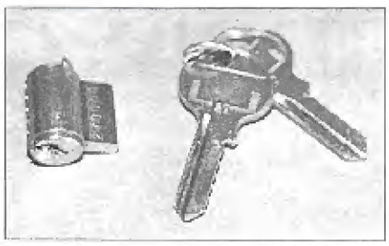
To disassemble, place the shackle in the open position. Use an Allen wrench to remove the screw at the bottom of the shackle hole. As you are turning the screw out, push down and this will start the cylinder guard casting out of the lock. The cylinder guard and casing for the plug are one piece. (*See photograph 3.*) With a needle nose pliers, pull out the casing

that contains the cam. Turn the padlock over and two steel balls fall out, along with a pin, the shackle spring, and the shackle. Clean all the parts in solvent.

Now you are ready to rekey, or replace the plug. The cylinder is a W27 and when purchased will be zero bitted. This means that all the cuts in the key will be at the zero depth. (*See photograph 4.*)

Master Lock has a rekeying/parts kit #291. (*See photograph 5.*) This is a pinning kit for Master Padlocks, and contains all the pins, master pins, and springs. It also has retainers, a key decoder, plug follower, and, on the inside lid, has a replacement cylinder and cylinder rebuilding instructions. Contact your Master Lock distributor for this kit.

To remove the plug, turn the key to the right about a 1/4 turn until you see a small indent at the rear of the cylinder. Look hard, as it is hard to see. There is no retaining ring on the plug, so you can use the follower to push out the plug. Be careful that you do not lose any of the upper pins and springs, as you will have to put them back from the inside. There is no removable cap to place them in from the outside. After rekeying, assemble the plug.



4. The W27 cylinder is zero bitted from the factory.

5. The Master Lock #291 padlock pinning and service kit.

To reassemble the padlock, place the shackle spring in place. Then turn the padlock bottom up, push in the shackle, and hold it in place with one hand. Put the two steel balls in the bottom inside, then use a small screw driver to push them into position. They tend to want to roll out if you move the padlock. With a steady hand, so the balls will not roll, use a tweezers to replace the small steel pin, cross wise to the body, next to the ball, on the side of the long leg of the shackle. This little pin gave me a lot of trouble, because it fell out and I could not see where it was positioned. The lock was assembled without the pin, but every time the shackle was opened, it would pop out of the case. The purpose of this little pin is to hold the shackle in place.

With this in the proper place, push in the casing of the cam. This can go in only one way as it is grooved on one side. When this is in place, it will hold in the balls and the small parts inside.

Continued on page 92

Cover Feature

CLOSING IN ON A PADLOCK

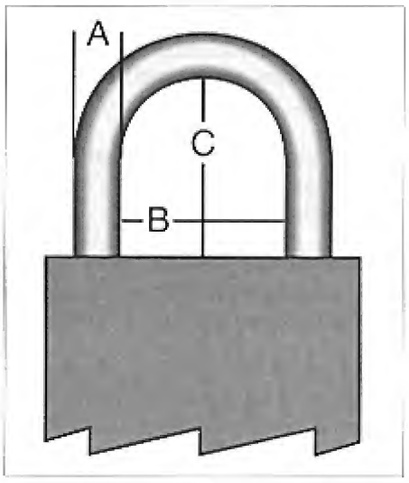
"The level of security is critical in choosing a padlock. A padlock used on dad's tool chest will not be the same as one used to protect a military installation."

Determining the appropriate padlock for an application means selecting a lock with the right features, as well as dimensional and keying considerations. Beyond the standard padlock, there are a variety of specialty locks, including bike locks, motorcycle chains and locks, motorboat and trailer locks, gun locks and computer locks for specific requirements. However, the majority of applications require standard padlocks.

While each application is unique, there are a few basic considerations to make before choosing a lock:

Level of Security

Deciding on the level of security the customer needs is critical in choosing a padlock. A padlock used to protect dad's tool chest will not have the same high level of security as one used to protect a military installation.



A–Shackle diameter; B–Clear width; C–Clear height.

Shackle Material and Dimension

The shackle is an important consideration, generally chosen on the basis of strength and size.

Shackle strength depends on the material and processes used to produce the materials. Manufacturers employ various metal alloys and treatments to obtain the tensile and shear strength desired.

Non-corroding brass shackles, suitable for weather-oriented concerns, can be prone to failure from tool and high heat (torch) attacks.

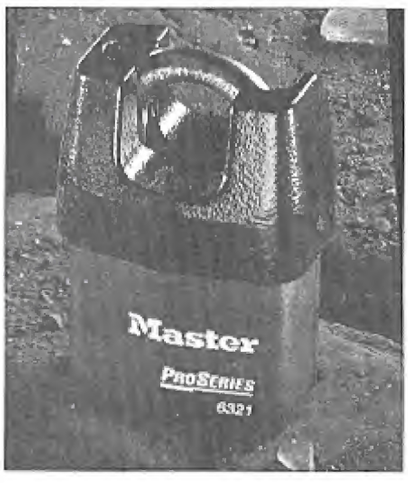
Steel shackles tend to be more tool and heat resistant, while hardened steel shackles offer even greater resistance. Some of the strongest shackle materials are steel alloy, such as boron steel alloys which provide up to twice the strength of conventional steel shackles.

In addition, manufacturers offer locks that minimize shackle exposure through shrouds or shields, reducing the likelihood of compromising the shackle with a cutting tool.

Steel shrouds offer moderate protection and could break under repeated attacks. Iron shrouds are malleable, which means that the iron will bend slightly forming a tighter seal around the shackle, rather than breaking. When selecting a shrouded padlock, make sure the shrouds will be accepted by the hasp or latch device.

While shackle material and design are important, the locksmith usually finds himself/herself concerned with shackle size.

To determine the shackle size needed, three measurements are important, shackle diameter, clear width and clear height. The shackle diameter is the cross section measurement of the shackle material. The thicker the diameter, the harder the lock will be to cut or bend. However, it still must be able to pass through the hole in the hasp or latch device.



The Master Lock ProSeries Padlock.

Clear width is the inside distance from one side of the shackle loop to the other. Clear height is the inside distance from the top of the padlock to the shackle bend. (*See illustration 1.*) Again, these distances must be appropriate for the latch device.

Body

The material of the padlock body is usually similar to the material used for the shackle. Body size is generally proportional to the shackle diameter; however, variations are available. What is important for the locksmith to determine is whether there are size restrictions concerning the application.

Some padlocks have options that can enhance the security of a lock.

Key Control/Cylinders

The mechanism used to operate the padlock and retain the shackles in the locked position is a primary element of security. Various types of shackle-retaining methods have been developed.

A common method uses a flat steel bar that locks into a ward on the wringing side of the shackle. For added security, some mechanisms lock both sides of the shackle.

In today's commercial-grade padlocks, the primary locking method is the double-ball. With this method, two steel balls are forced into wards or a saddle on each side of the shackle. Some padlocks feature spring-loaded balls, while others feature a locking double-ball method. In the latter version, the balls are physically blocked into place by the cylinder tailpiece or cam. This has become quite popular because of its strength and holding ability when a shackle is pulled and pried. (*See illustration 2.*)

Another security issue concerns the pins in the locking cylinder. High-security systems feature mushroom or spool pins which make it more difficult for the lock to be picked.

For the maximum security applications, many manufacturers, such as Medeco, have developed proprietary locking mechanisms. What's more, the manufacturer or designated representative, such as a locksmith, will often retain the key codes, making it difficult for unauthorized individuals to duplicate the keys.

Environment

Knowing where the lock is to be used is critical to the operation and life of the lock, as well as the security of the property it is protecting. Padlocks used outdoors may be exposed to salt air near a sea coast; ice rain in colder climates; and dust and sand in arid areas. Some padlocks must face corrosive elements in factories, so it's important to choose the padlock that fits the environment. Many manufacturers design padlocks to withstand highly abusive conditions.

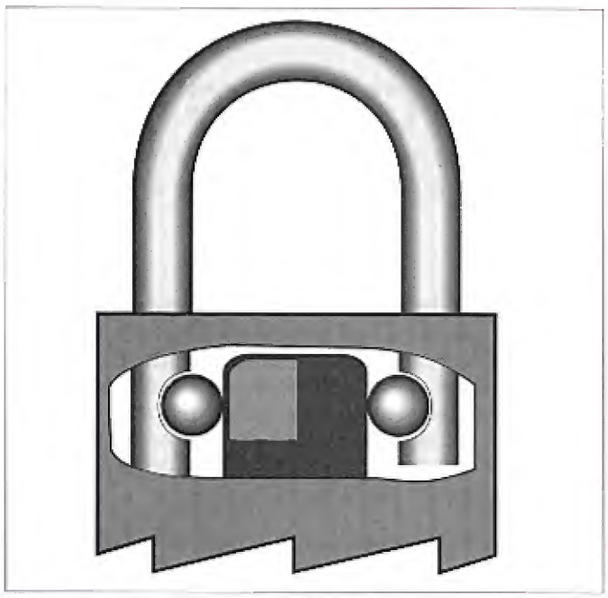


Illustration 2

There are three factors that determine how well a padlock will endure the environment - lock body materials, plating and weather coverings.

In areas that demand high corrosion resistance, the lock body can be made of brass or stainless steel. For minimal exposure, these are sound options.

For more demanding applications, the steel or brass padlock can be plated with additional corrosion-resistant material. A lock with cadmium plating endures more endures more environmental abuse than a standard brass padlock.

The lock may also be protected with a special covering that helps prevent moisture from penetrating the lock. Extra-weather-resistant padlocks feature both holes, and keyway shields to minimize the amount of moisture that seeps into the locking mechanism.

Convenience

When we discuss convenience, we are talking about convenience for both customers and locksmiths.

Residential customers may prefer padlocks that can be keyed to existing house keys or key-retaining padlocks. commercial users may want keyed-alike padlocks, masterkey systems or custom security systems.

For locksmiths, many padlocks come with removable shackles and cylinders. Many allow the use of cylinders with commercial keyways. These allow the locksmith to retain minimal inventory and still provide customers with the padlocks they need.

Written by Master Lock Company.

PADLOCK PRODUCERS

In this section you will find a handy reference guide to a variety of padlock manufacturers. Each manufacturer was invited to list one series from their line, along with relevant specifications.

	GENERAL DESCRIPTION			DIMENSIONS IN SERIES			MISC.						
	PADLOCK SERIES NAME	BODY MATERIAL IN SERIES SEE LEGEND BELOW	BODY STYLE SEE LEGEND BELOW	BODY WIDTH	SHACKLE DIAMETER	SHACKLE CLEARANCE	STANDARD KEYWAY	CYLINDER PINNING AVAILABLE	SHACKLE GUARDS AVAILABLE	WEATHER RESISTANT FEATURES	REKEYABLE SERIES	ALTERNATE KEYWAYS AVAILABLE	HIGH SECURITY KEYWAYS AVAILABLE
Abus Lock Co. Woburn, MA Phone 800-225-5348 Fax 617-938-7009	83/45 Rekeyable	B	SR	1¾"	5/16"	7/8"	All	6	N	Y	Y	Y	N
Almont Lock Co., Inc. Almont, MI Phone 810-798-8950	1 3/4"	B	SR	1¾" 1¾" 1¾"	5/16" 5/16" 5/16"	7/8" 2" 3"	Schlage C	5 6	N	Y	Y	Y	N
American Lock Co. Crete, IL Phone 800-323-4568 Fax 800-534-0531	Professional	S	SR	2⅛" 2" 2⅛"	¼" ⅜" ⅜"	1⅛" 1⅛" 1"	American Lock Co.	5 6	Y	Y	Y	Y	N
APR Industries, Inc. Boonton, NJ Phone 800-729-2674 Fax 201-335-3008	BP Series	B	SR	1⅛" 1¾" 2"	¼" 5/16" ⅜"	¾" ⅞" 1"	Master	4 5	Y	Y	N	Y	Y
Baton Lock & Hardware Co. Garden Grove, CA Phone 800-395-6880 Fax 714-265-3630	#766T	B	SR	1¾"	5/16"	1⅛"	Sch, Kw, Wi, Yl, Co Sar.	5 6	Y	Y	Y	Y	Y
CCL Security Products New Britain, CT Phone 800-733-8588 Fax 203-223-7601	Sesamee K436	B	SR	1⅞" 1⅞"	5/16" 5/16"	1" 2⅛"	None	N/A	N	Y	Y	N	N
NT Falcon Lock Garden Grove, CA Phone 800-266-4456 Fax 800-777-8229	No. 955	B	SR	2" 2" 2"	13/32" 13/32" 13/32"	1" 2" 6"	Falcon-G	5 6 7	N	N	Y	Y	N
Federal Lock Co. Romeoville, IL Phone 800-682-9851 Fax 708-378-4767	500	B	SR	2" 2" 2"	⅜" ⅜" ⅜"	1" 2" 3"	Schlage, Corbin 60, Wieser, Yale, Arrow	5 6	Y	Y	Y	Y	Y
Guard Security Hardware Brooklyn, NY Phone 800-696-4827 Fax 716-272-8335	600 Series	B	SR	1½" 1¾" 2"	.253 .284 .347	.873 1.070 1.119	Viro/Master	5	N	Y	N	N	N
Hampton Products Int'l. Irvine, CA Phone 800-562-5625 Fax 714-472-9657	Weatherproof	S	L	1¼" 1½" 1½"	13/32" 5/16" 5/16"	13/16" 1¼" 2"	M-I	4	Y	Y	N	N	N
Hercules Industries, Inc. Prospect, OH Phone 800-345-2590 Fax 614-494-2274	800	B	R	1¾" 1¾" 1¾"	5/16" 5/16" 5/16"	⅞" 1⅛" 2"	A	4 5	N	Y	N	Y	Y
LSDA Chicago, IL Phone 800-323-1919 Fax 708-456-0878 6 Additional Branches. Call for locations.	LSDA Rekeyable Brass Padlocks	B	SR	1¾" 1¾" 1¾"	5/16" 5/16" 5/16"	⅞" 2" 3"	Assorted	5 6	N	Y	Y	Y	N
Master Lock Co. Milwaukee, WI Phone 414-444-2800 Fax 414-449-0322	Pro Series Padlocks	S	SR L R	2⅛" 2⅛" 2⅛"	5/16" 7/16" 7/16"	1⅛" 1⅛" ¾"	W6000 5-Pin Cylinders	4 5 6	Y	Y	Y	Y	Y
Medeco Security Locks Salem, MA Phone 800-548-8472 Fax 703-380-3010	55 Series Controlled Entry	B	SR	1¾" 1¾"	5/16" 5/16"	1⅛" 5"		5	Y	Y	Y	Y	Y
Mul-T-Lock USA, Inc. Lodi, NJ Phone 800-562-3511 Fax 201-778-4007	High Security Padlocks	S	SR	2⅛" 2⅛" 2⅛"	½" ½" ⅜"	1½" 2¼" 1¾"	006	5	Y	Y	Y	Y	Y
New Standard Mfg. Co. Las Vegas, NV Phone 702-385-1152 Fax 702-382-1920	NKR-CV Convertible	B	E	1¾" 2"	5/16" ⅜"	⅞" ⅞"	All Lg. Section Keyways & Systems	4 5 6 7	N	Y	Y	Y	Y
S. Parker Hardware Mfg. Corp. Englewood, NJ Phone 800-772-7537 Fax 201-569-1082	Jaws	B	SR	3⅜" 2¾" 2"	½" ½" 5/16"	¾" 9/16" ½"	Viro	5	N	Y	N	N	N
Presto Lock, Inc. Garfield, NJ Phone 201-340-1007 Fax 201-340-2705		Z	SR	1¼"	¼"	1"		N/A	N	N	N	N	N
Sargent & Greenleaf, Inc. Nicholasville, KY Phone 606-885-9411 Fax 800-634-4843	Environmental Padlock	C	SR	2¾" 1⅞" 1⅞"	9/16" 3/8" 5/16"	1⅛" 1⅛" 1⅛"	S & G	uses disk	N	Y	Y	N	N
Schlage Lock Co. San Francisco, CA Phone 415-467-1100 Ext. 5200 Fax 415-330-5626	PL-Series	B	SR	1¾" 2" 2⅛"	9/16" ⅜" 7/16"	1⅛" 3" 2"	Schlage C	6	N	Y	Y	Y	Y
The Wilson Bohannan Co. Marion, OH Phone 614-382-3639 Fax 614-383-1653	Top Brass®	B	SR	1½" 1⅛" 2"	¾" ⅜" 5/16"	⅞" 1½" 2"	Master	4	Y	Y	Y	Y	N

B-Brass **S**-Steel **Z**-Zinc Die Cast **C**-Copper Infiltrated Steel Alloy **L**-Laminated **SR**-Square/Rectangular **R**-Round **E**-Elliptical

Cover Feature

THE KEY TO PADLOCKS IS CUSTOMER SERVICE

"The public's increased sensitivity to security gives professionals an opportunity to sell better products if they help customers assess their needs."

Locksmiths are combining the skills of Sherlock Holmes and elementary school teachers to respond to their customers' increasing concerns over safety and security, according to our conversations and an informal telephone survey with locksmiths around the country. Those skills are providing locksmiths with expanded marketing opportunities.

Padlocks, like a customer's needs, come in all shapes, sizes and specifications.

I want to point out at the outset that there still are more peaceful areas of the country where people feel comfortable leaving their doors unlocked. In those cases, going with whatever is less expensive and familiar may still be the rule, no matter how hard a locksmith works to match the right products to the customer's *real* needs.

While driving that point home, Roy Bradley, operator of Indian Lock & Safe in Tulsa, Oklahoma, quickly pointed out that he is seeing more security awareness in the people moving into Tulsa and a growing willingness of longtime residents to listen to other options.

In most parts of the country, however, an increasing number of customers are coming to locksmiths knowing they have a need for greater security, but having no idea what they need to achieve it. Peter Ballotta, CML and owner of Avenel Locksmith in Avenel, New Jersey, says that probably 70 percent of his customers don't know what they want when they come into his store.

That is where the locksmiths' knowledge and experience gives them a unique advantage over their competitors. Whether dealing with individuals that walk in off the street, established businesses or industrial users, locksmiths are building successful sales and customer referrals by carefully assessing customer needs, then helping customers understand the best ways to answer those needs.

Sue Fields and her husband, R.D., were way ahead of the current business books touting customer satisfaction as the key to business success. Owners of T & F Locksmith in Mesa, Arizona, they built their business by helping customers find the best solution that meets their needs. "Half of a locksmith's job, " Sue notes, "is education."

Assessment

While price is still a factor, many locksmiths are finding that customers' increased sensitivity to security gives professionals an opportunity to sell better, higher-priced products if they take the time to help customers assess their needs, risks, and outside factors that most people may not know about, but are crucial to finding the right solution.

Wherever you're located, most locksmiths start by trying to determine how sophisticated a customer is and whether he really knows what he wants.

To deal with the large percentage of customers who don't know what they want, for example, Peter Ballotta has developed a list of questions that starts with determining what a customer really thinks he is looking for. Even if a customer comes in looking for a cheap lock, questions about "what is being protected" and "who is it being protected from" can start a customer thinking about his real security needs.

In fact, price should not be the first question asked. That tends to fix a customer's mind on cost, rather than security. To be of most help, customers should be encouraged to first talk about their needs, then focus on possible solutions, then price.

Location

Ballotta also asks about the location of the site since some areas of Avenel are near roads that provide easy access for people coming in from other areas.

Brian Selby, manager of Joliet Lock & Key in Illinois, also says location is a key factor because crime has jumped 17 percent in some areas he serves since gambling boats began operation last year. "I try to point out that 30 percent of the crooks have pick sets and can get into some padlocks in less than 30 seconds, or drill less secure padlocks in under three minutes. Those padlocks might be okay to keep a kid out of dad's tool chest, but, if you're doing anything more than keeping the good guys out, you need to go to a better lock.

"With the way the world is today people are willing to spend a few dollars more to get that added security," Selby says.

Mounts

In that same vein, most locksmiths try to ensure that their customers don't put a $20 padlock on a $2 hasp. As people in our industry know, questions about how the lock is going to be mounted and where it's going to be mounted are as important as questions about the lock itself.

Other considerations like shackle diameter, width and height are factors in choosing the correct padlock.

Weather

Located in a state that experienced sub-zero temperatures and chill factors of 70 below this winter, Selby notes that "nothing damages locks more than weather." One of the first questions he asks is whether the padlock will be inside or outside. "If it's outside, it's got to be high quality or, at least, shielded from severe weather. Any locksmith operating in this part of the country gets a lot of experience dealing with angry people that have frozen locks. I try to make sure that doesn't happen with my customers by recommending products I know will work, whatever the weather."

Water & Humidity

In addition to sleet and freezing temperatures, both Fields and Ballotta have to be concerned about the effects of water and humidity because of the boaters they deal with. "You'd be surprised," Fields says, "by the number of boaters that don't know that laminated and ordinary steel padlocks just don't hold up under these particular conditions. Brass locks with brass shackles will get a patina, but they don't rust up. If security's more of an issue, we recommend steel shackles."

Ordinances

Location also comes into play if local ordinances prohibit certain kinds of locks or more than one lock from being installed on exterior doors, notes Fields. "Our fire department has a tizzy-fit if they find the wrong kind of lock or more than on lock on a door," she notes. "That's the kind of thing that most people won't know that we need to help them with."

Business and Industry

Many of these same considerations come into play when working with business and industrial customers, especially if they are the owner/operators of small companies. Methodical attention to their unique needs is crucial to finding the right solutions.

Ballotta's assessment takes the business buyer through the same issues we've been discussing, then moves on to determine the level of security required and the required level of controlled access. Other questions determine how many locks are need and what kind of keying and rekeying provisions need to be taken into account. That's familiar ground to any professional locksmith, but we are increasingly hearing that the customers' are more willing to explore options and listen to their locksmiths' recommendations.

We see that as a real opportunity for the industry, and part of the growing professionalism that locksmiths are bringing to their customer relations. Locksmiths that take time to work out ways to help their customers identify their real security needs are finding greater opportunities to sell better products, earn customer loyalty and benefit from referrals, the best kind of advertising.

Written by American Lock Company.

Locksmith Checklist:

Here is a compilation of questions locksmiths around the country are using to help determine what solutions best meet their customers' needs:

- What do you plan to do with the padlock?
- Where will it be located?
- What are you trying to protect?
- Who are you trying to protect it from?
- Will the lock be used in a high crime area? What about vandalism?
- Will it be left unattended for a long period of time?
- What problems have you encountered in the past?
- What laws, ordinances, regulations or insurance provisions need to be taken into account?
- What about exposure to weather, humidity or corrosive conditions?
- Where will the lock be physically mounted?
- How will the lock by mounted?
- Do the dimensions of the mount require special locks or configurations?
- Do you need shackles to meet specific situations?
- Do you want all your locks to work off a single key?
- Do you need a master or grand master keying system?
- Do you want to prevent key duplication?
- Do you have a turnover in personnel or other situation where the ability to rekey existing locks is important?
- Do you have problems with padlocks being left unlocked?
- Does the application call for shrouded or other higher-security provisions?
- How many locks do you need?

Cover Feature

PADLOCK: A SINGLE SENTRY

"Along a desert highway at the top of a telephone pole, is a lever controlling the flow of electricity to 1.5 million consumers. It's protected by a padlock."

Swat teams, maximum security prisons, the Secret Service, all images of what it means to protect millions of people from disaster. Yet, for the most part, a major portion of our municipal and domestic security and well being lies in the effectiveness of a padlock.

Along a seemingly empty desert highway in Southern California, at the top of a lone telephone pole, there is a large, nondescript lever which is unnoticed by the few cars that travel near it. It is however a lever of enormous importance; it controls the flow of electricity to 1.5 million consumers in San Diego and Orange County. Like a railroad switching gate, the lever can divert the flow of power from one place to another. For that reason, its movement must be restricted to authorized personnel only.

The Schlage padlock is now used by San Diego Gas & Electric

The lever is protected by only one sentry: a padlock. "Obviously, heavy equipment switching gear must be protected by a quality lock," said Darryl Murry, who leads San Diego Gas & Electric's (SDG&E) Meter Revenue Protection division and its Energy Theft Investigation unit.

"In addition to protecting the switching gear, we use padlocks to give us access to rural meters," Murry said. "Say a rancher has a meter on his property, but access to that meter is blocked by a gate with a padlock. Since the law requires that we have access to that meter, we provide a masterkeyed padlock to that gate.

According to Murry over 78,000 padlocks are currently in use by SDG&E protecting residential and commercial meters, overhead and underground switching stations and substations throughout the counties.

"We also need padlocks on our own transformer station — on each and every switch within those stations. There can be 200 switches in each substation. We also use padlocks on meters in metering rooms serving large buildings — like in the meter vaults for high-rises."

With the number of padlocks used, Murry says that the main reason for failure is corrosion.

"What we find," said Murry," is that corrosion makes putting the key into the cylinder kind of hard, and when you try to turn it, the key breaks. Because of the salt air, we find corrosion to be the largest reason of padlock failure."

The large number of locks and the corrosive atmosphere in which they need to operate means that the locks that are used must meet a very stringent list of specifications before they can be chosen.

"SDG&E puts locks to the test before making their decision," said Glen Stenmer of Schlage's Commercial Lock division. "They put prybars and sledgehammers to them. They also required the locks to have no steel parts, only stainless steel or brass."

"There are varied climates and harsh environments around San Diego," said SDG&E's Murry. "We've got cold, coastal fog and salt. We've got hot, sandy desert. We've got urban pollutants. We needed a lock that stands up to nature as well as to intruders.

"These locks are expected to be in service for 25 years," says Murry.

Among the requirements the padlocks must pass are 2000 hours in a salt fog bath and ultraviolet light tests designed to test for corrosion resistance. The padlocks must also be made of stainless steel or brass. Absolutely no steel is allowed in the construction of the lock.

Another critical part of the padlock requirements is its keying. According to Murry, key control is the single largest problem when it comes to the padlock security, saying that both convenience and security are critical.

"We need a system where only one key is required to open a certain level lock," says Murry, "sending a man out with four or five different keys to open a lock is not reasonable."

"For security we need keys that are restricted, that cannot be duplicated. Having unrestricted keys was one of the biggest reasons for people being able to get by the padlocks."

Added to the masterkeying and restricted keyway, SDG&E's padlock system also incorporates both a backup masterkey system and restricted keyway. In the event a change needs to be implemented, it can be done quickly, effectively and at little cost.

This article was written by Schlage Lock Company.

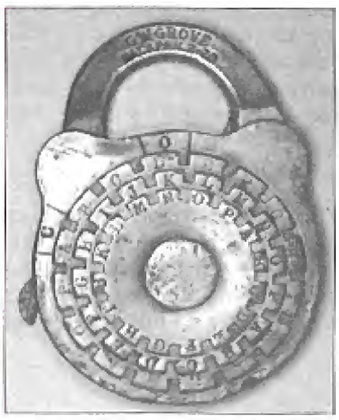
Cover Feature

LOOKING FOR WEREWOLVES

"These locks are busts about 3" to 4" high with names like 'The Hunchback,' 'The Evil Eye,' 'The Skull and Cross Bones,' and 'The Werewolf.'"

by Don Probasco

About 25 years ago Don Friedman of Chicago became interested in collecting. His criterion for the collecting was that it be mechanical in nature, relatively inexpensive, and small in size. Because he was limited in the amount of space that he could devote to the storage and display of his collectibles, Don chose antique padlocks. *(See illustration 1.)*



1. Three concentric wheels make up this padlock, developed and patented by G.W. Grove in 1978.

Eventually he accumulated about one thousand padlocks but decided that he needed to concentrate on obtaining better quality padlocks and less on quantity. His storage space had become filled with a large number of padlocks that were neither unique nor valuable. His collection currently consists of about 400 padlocks, however, this will change drastically in April. More about that later.

One type of very unusual lock that Don began to specialize in was the "Story Book Locks," manufactured about 1875. They were given the name "Story Book" by a Mr. Rose (or Roses) who wrote a book on them about 15 years ago. These locks are three dimensional busts some 3" to 4" high. Some of the characters as named by Mr. Rose in his book are "The Hunchback," "The Evil Eye," "The Skull and Cross Bones," and "The Werewolf." All of these characters are made of cast iron and are of very good quality with the keyway located in the bottom of the bust. *(See photographs 2 and 3.)*

"The Hunchback" shackle consists of the arm which goes from the shoulder around and up to the mouth. The tongue is the latch on the shackle. When the key is turned, the tongue retracts and lets the shackle open.

Another group of padlocks were made about this time by Russell and Irwin (better known to most of us as Russwin). They were done in a decorative motif and are extremely beautiful. Three different ones that they produced were in a Japanese motif, one in the shape of a vase, and one of the Goddess Diana (goddess of the moon and hunting).

Don also collects the round brass six-lever pushkey padlock. These are often referred to as "Pancake Locks" because they were 2-1/4" in diameter and about 5/8" thick. These were produced by a number of American companies. Some just had manufacturer names and some had the names of the commercial companies that used them on their buildings. The value of these locks depends on the names found on them, since some are more rare than others.

Although Don has some railroad locks in his collection, he has not tried to accumulate them. Railroad locks have been very popular and the price has been bid up rather briskly. What railroad padlocks Don does purchase are usually used to trade for the types of locks he prefers. Don's taste in padlocks has created a collection that has become desirable and more expensive.

2. The "Hunchback," cast iron, 1880-1900, also designed by John Gerard for Trenton Lock and Hardware Co. The key is inserted into the bottom of the lock, releasing the arm, which serves as the shackle, going up to the mouth of the bust.

I was surprised to learn that Don is not a locksmith. He is a Certified Public Accountant. Another surprise is that he is going to sell his total collection at public auction in April. Currently he is compiling a catalog with full pictures and descriptions of the locks. After the auction, each of the catalog buyers will be furnished with a list of sale prices for each of the items in the catalog.

3. The "Werewolf," made of cast iron, 1880-1900, was designed by John Gerard for Trenton Lock and Hardware Co.

This pricing is important because many padlocks are not sold in the public arena, but are traded privately by collectors. This is also important for assessing the value of padlocks that are only one-of-a-kind or two-of-a-kind. Don expects that the auction will establish what the public is willing to pay for these items and will be included in the catalog. The price of the catalog has not been set as of this writing.

For more information about the auction and the catalogs, contact Don Friedman, 660 W. Grand, Chicago, IL 60610.

MINI SECTION

MAKING SENSE OF SAFES

"When a safe is described, we often hear a chattering of safe specifications, much of which may seem unfamiliar or unknown."

Jargon and specifications have become an ingrained part of locksmithing, this includes safes and safework. When a safe is described, we often we hear a chattering of safe specifications, much of which may seem unfamiliar or unknown.While this can sometimes be confusing to junior or apprentice locksmiths, these specifications are a very important part of the safe industry.

Following is a list of Underwriters Laboratories burglary ratings and specifications for safes. We hope this will provide you with more understanding on the nature and ratings of the safes on which you work.

TL-15

The safe must resist common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" (12.7 mm) diameter, and pressure-applying devices or mechanisms. 15 minutes.

Deposit Safe

Common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" diameter, pressure-applying devices or mechanisms, and fishing and trapping devices or mechanisms. 15 minute.

TL-30

Common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" diameter, pressure-applying devices or mechanisms, abrasive cutting wheels, and power saws. 30 minutes.

TL-15X6

Common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" diameter, pressure-applying devices or mechanisms, abrasive cutting wheels, and power saws. 15 minutes.

TL-30X6

Common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" diameter, pressure-applying devices or mechanisms, abrasive cutting wheels, and power saws. 30 minutes.

TRTL-30

Common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" diameter, pressure-applying devices or mechanisms, abrasive cutting wheels, and power saws, and an oxy-fuel gas cutting or welding torch. 30 minutes.

TRTL-15X6

Common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" diameter, pressure-applying devices or mechanisms, abrasive cutting wheels, and power saws, impact tools, and an oxy-fuel gas cutting or welding torch. 15 minutes.

TRTL-30X6

Common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" diameter, pressure-applying devices or mechanisms, abrasive cutting wheels, and power saws, impact tools, and an oxy-fuel gas cutting or welding torch. 30 minutes.

TRTL-60X6

Common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" diameter, pressure-applying devices or mechanisms, abrasive cutting wheels, and power saws, impact tools, and an oxy-fuel gas cutting or welding torch. 60 minutes.

TXTL-60X6

Common hand tools, picking tools, portable mechanical and electric tools, grinding points, high-speed and carbide drills not exceeding 1/2" diameter, pressure-applying devices or mechanisms, abrasive cutting wheels, and power saws, impact tools, and an oxy-fuel gas cutting or welding torch, and nitroglycerine or other high explosives. 60 minutes.

TL = Tool Resistant, TR = Torch Resistant, TX = Explosive Resistant

Note: For those classifications that allow the use of an oxy-fuel cutting or welding torch, the quantity of gas consumed in any one test shall be limited to 1000 cubic feet (28.3 m^3), combined total of oxygen and fuel gas.

To read these ratings, the set of letters (e.g. TL, TR, TX) are the burglary classification being met. The number following the classification (e.g. 15, 30, 60) is the minimum time limit the safe must withstand UL's attack. The final number (if there is one; e.g. X6) indicates the number of sides that must withstand the attack.

In the case of a six-sided safe, such as a TRTL-30X6, it must withstand the specified torch and tool attacks for a minimum of 30 minutes on the door, and all six sides of the safe body - front, back, both sides, top and bottom.

While other ratings applied to safes (i.e. fire resistance, door thickness, media etc.) are not covered here, this should be enough to give you a good jump start on understanding the jargon behind the work.

This latest table of ratings is provided by Underwriters Laboratories, Northbrook, Illinois.

SAFE MANUFACTURERS

In this section you will find a handy reference chart detailing information about the products offered by a variety of safe manufacturers. Refer to this guide when you need to find the right safe for the right application.

MINI SECTION

	SAFES MANUFACTURED									MISC.	
	FIRE SAFES	BURGLARY SAFES	GUN SAFES	MEDIA SAFES	DROP SAFES	HIGH SECURITY SAFES	VAULTS	FLOOR SAFES	IN-FLOOR SAFES	WALL SAFES	UL RATED SAFES AVAILABLE
A & B Safe Corp. Chicago, IL Phone 800-253-1267 Fax 312-342-6694		●			●	●		●			Y
Access Safe & Supply Burington, Ontario, Canada Phone 800-268-9033 Fax 905-319-0366						●	●				Y
Adesco Safe Co. Paramount, CA Phone 800-821-6803 Fax 714-761-2846	●	●			●	●		●	●		Y
Allied Gary International Waynesboro, GA Phone 800-456-4279 Fax 706-554-3319		●			●	●		●	●	●	Y
American Security Products Co. Fontana, CA Phone 800-421-6142 Fax 909-685-9685	●	●	●	●	●	●	●	●	●	●	Y
Armor Safe Technologies Vista, CA Phone 619-598-5470 Fax 619-598-5471		●			●	●		●	●		Y
Bear Safes Oklahoma City, OK Phone 405-949-0222 Fax 405-949-0333			●								N
Brown Safe Manufacturing San Marcos, CA Phone 800-641-7233 Fax 619-744-4055		●	●		●	●	●	●	●	●	Y
Buddy Security Systems Chicago, IL Phone 800-896-9688 Fax 312-733-8356									●	●	N
Bumil North America Los Angeles, CA Phone 800-713-7233 Fax 818-285-4051	●	●	●	●	●	●		●	●	●	Y
Cannon Safe Inc. Pico Rivera, CA Phone 800-242-1055 Fax 310-692-7252		●	●		●			●	●	●	N
Cobalt Manufacturing, Inc. Denton, TX Phone 817-382-8886 Fax 817-383-4281		●	●								Y
Dayton Safe Co. Dayton, OH Phone 513-461-3900 Fax 513-461-4044		●	●		●			●	●		N
Detroit Mini-Safe Co. Detroit, MI Phone 800-445-5397 Fax 313-931-7758					●						N
Diebold Inc. Canton, OH Phone 216-588-3768 Fax 216-588-3794	●	●		●		●	●	●		●	Y
DLI Safes E. Northport, NY Phone 800-723-3640	●	●				●					Y
Eclipse Industries Escondido, CA Phone 619-746-1016 Fax 619-739-0072		●	●		●			●	●	●	N
Empire Safe Co. New York, NY Phone 212-226-2255 Fax 800-543-5412	●	●	●	●	●	●	●	●	●	●	Y
Fort Knox Orem, UT Phone 800-821-5216 Fax 800-226-5493		●	●				●				Y

MINI SECTION

SAFE MANUFACTURERS

In this section you will find a handy reference chart detailing information about the products offered by a variety of safe manufacturers. Refer to this guide when you need to find the right safe for the right application.

	SAFES MANUFACTURED									MISC.	
	FIRE SAFES	BURGLARY SAFES	GUN SAFES	MEDIA SAFES	DROP SAFES	HIGH SECURITY SAFES	VAULTS	FLOOR SAFES	IN-FLOOR SAFES	WALL SAFES	UL RATED SAFES AVAILABLE
Frontier Safe Co. Fort Wayne, IN Phone 219-422-4801 Fax 219-420-7233	●	●	●				●				N
Gardall Safe Corp. Syracuse, NY Phone 800-722-7233 Fax 315-434-9422	●	●	●	●	●	●		●	●	●	Y
Granite Security Products, Inc. Fort Worth, TX Phone 817-561-9095 Fax 817-478-3056		●	●								Y
Gun Vault, Inc. Scottsdale, AZ Phone 800-622-4903 Fax 602-951-6984			●								N
Hamilton Products Group, Inc. Arlington, VA Phone 800-876-6066 Fax 703-527-8487		●	●			●	●				Y
Hayman Safe Co., Inc. Oviedo, FL Phone 800-444-5434 Fax 407-365-5434		●	●		●		●	●	●	●	N
HPC, Inc. Schiller Park, IL Phone 708-671-6260 Fax 708-671-6343										●	Y
Liberty Safes Provo, UT Phone 800-247-5625 Fax 801-373-9525			●								Y
Mancini Safe Co. Cambridge, MA Phone 800-367-3453 Fax 617-497-7542	●	●	●	●	●	●	●	●	●	●	Y
McGunn Safe Co. Chicago, IL Phone 800-621-2816 Fax 708-458-3323		●	●		●	●	●	●	●	●	N
Meilink (Division of Fireking Int'l) New Albany, IN Phone 800-634-5485 Fax 800-227-7513	●	●		●		●	●	●		●	Y
Mosler Hamilton, OH Phone 513-867-4000 Fax 513-867-4016	●	●	●	●	●	●	●	●	●	●	Y
National Security Safe Co. American Fork, UT Phone 800-544-3829 Fax 801-756-8043			●								N
Pacific Security Products Alhambra, CA Phone 800-331-0785 Fax 818-289-2326	●	●	●		●			●	●	●	N
Schwab Corp. Lafayette, IN Phone 800-428-7879 Fax 317-447-8278	●			●							Y
Sentry Group Rochester, NY Phone 800-828-1439 Fax 716-381-8559	●			●	●			●	●	●	Y
U.S. Security Safe Los Angeles, CA Phone 818-242-3156 Fax 818-242-7638		●			●	●	●	●	●		Y
Wilson Safe Co. Philadelphia, PA Phone 800-345-9053 Fax 215-492-7104	●	●			●	●		●	●		Y

by Jake Jakubuwski

HUNTIN' WITH THE BIG DAWGS!

"You can often hunt with the big dawgs, and you can often out-hunt them if you're willing to try."

As with any type of business, you'll find that locksmith businesses come in all shapes and sizes. There are operations that span several states, with multiple locations, as well as "part-timers" who supplement their incomes by rekeying locks for neighbors and friends. There are "specialty" locksmiths that devote their energies to a limited segment of the trade (like automotive, or safe work). And there are the "general practitioners" that do practically any type of lock work they may be called upon to do.

However, I believe any survey would support the conclusion that the majority of locksmith businesses are of the one and two person variety (most often a spouse or significant other). I feel the greatest number of these locksmiths fall into the "general practitioner" category. And, even though they may have a preference for the type of lock work they do, they are not specialists in the exclusive sense of the word. Other factors would indicate that "mobile" locksmiths outnumber their shop-based counterparts by a fair margin.

Another conclusion that can be drawn (with some exceptions) is that because of the very nature of their business, the average locksmith (small, shop-based locksmiths included) is forced to operate under definite financial, and logistical restraints. Because the average locksmith does have limited financial resources and a limited labor pool, they may often be forced to "back-off" from some larger and, quite possibly, highly profitable jobs.

In Bubba-ese (that's "Southern" for, "Good Ol' Boy") what you're being told by the larger shops, some distributors and many manufacturers is: "If y'all cain't hunt with the big dawgs, then stay on the porch!"

Unfortunately, too many average locksmiths do just that. They stay on the porch and pick up the small game that the "big dawgs" miss from running so fast and hard.

Well, I'm here to tell you that unless you absolutely want to stay on the porch, and you're content with the "leavin's" there's no reason in the world you "cain't hunt with the big dawgs." Not only can you hunt with them, you can often outhunt the "big dawgs" ... if you're willing to try; and if you're willing to consider a different idea or two.

Admittedly, because you fall into the average locksmith profile that I drew for you earlier, you do have limitations. But what you need to realize is; there are creative ways to overcome those limitations and turn them to your advantage. On the plus side, you can do this without bankrupting yourself by buying high-priced hardware or hiring a bunch of people that you don't need on your payroll.

So, how can you hunt with the "big dawgs" and not get run over, out-run, chewed up by the pack or get shot down by the competition? You can do it by taking an unorthodox approach (you know, another one of my alternatives) to landing the business that the "big dawgs" are after. Now, you're not going to be the "top dawg" on every hunt, but you can be up front often enough to keep the hunting interesting.

O.K. First things first. Let's assume you get a call (like I did) from a school district that invites you to "give them a bid" on replacing some hardware and "fixing a few doors." You ask the person that contacted you what the job requires. They tell you that they need twenty or twenty-five, fire rated, Sargent panic devices, forty lever sets with a classroom function and all of it keyed to their existing masterkey system. Gulp!

At this point you can either tell your school district contact person that you appreciate the call but your schedule does not permit you to bid on a large job at the present time. (You decided to stay on the porch.) Or, you can tell them that you would like to survey the job and determine exactly what their needs are before you offer a bid. Now you're beginning to hunt with the "big dawgs."

Taking this one step at a time, you survey the job and you determine you're going to be looking at about ten grand (Gulp! Gulp!) worth of hardware at your cost, plus the rekeying and installation! Since you don't have a spare ten G's floating around in your checking account, you're going to have to get creative if you want to bid this job.

Assuming that your mother-in-law, your aunt Martha, the SBA and your favorite banker all decline to participate in providing funding to cover the costs of the material needed if you get the job, what can you do, other than refuse to submit a bid? Let me tell you what I would do. In fact, what I did under very similar circumstances.

I gave the hardware sale away! That's right! I talked to my contact at the school district and told them that the cost of the hardware was more than I'd be able to handle. However, if they were interested, I could save them a considerable amount (my profit on the hardware sale) if they wanted to buy the hardware themselves and have me install it and rekey it.

Why would I do something like that? Two reasons: First I could not, nor would I want to, tie up ten thousand bucks in one job. Secondly, I did want to install the hardware, rekey it, and make the necessary door repairs since that part of the job represented a nice paycheck. True, I did not make any profit on the

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hardware itself, but I made out very well on the installation and repairs. Which would not have happened if I had stayed on the porch.

If you were bidding this job, the next obstacle would be the labor necessary to install the hardware in a given period of time. I solved that problem in two ways. One, I network with other locksmiths to install large jobs, or do large masterkey jobs. One advantage to working this way is that you are using bona-fide locksmiths as sub-contractor's. In addition to not having to tell them how to do the job, you do not have to pay workmen's comp and employee related taxes.

On this particular job, I told the school district that since I was a small contractor (NOTE: in most jurisdictions, i.e. Federal, State, County or City, the law requires that bid preference be given to small business and minority owned business), I could not bring in a large crew and "knock the job out." But if they were agreeable (they were, as it turned out), I could divide the job into segments and do it over several weekends. I also told them that the advantage to doing it this way is this route would cause the least amount of disruption to their schedules since no one was in the buildings on weekends anyway.

Of course, my big advantage lay in the fact that I had all week to pursue my normal business, and could do this job on weekends when I'm not normally busy. In essence, by doing the job on weekends, the money that I made could be considered gravy, even after paying my sub-contractor.

Another benefit to accrue to me from this job is that I now do all of the district's maintenance work. If they need a lock rekeyed, a door fixed, a closer installed or a push-plate put on a door, they call me. Again, that's work I would not have gotten if I had not decided that I could hunt with the "big dawgs."

I have used this same tactic to lock up other larger businesses as regular customers. Customers that the "big dawgs" would have gotten if I had decided to stay on the porch. Sure, I realize that I lose the hardware profit on the initial sale. But that becomes secondary to the business that I do gain. As these customers add other hardware, in smaller quantities, I do sell the hardware to them ... at a healthy mark-up. In other words, by "saving" the customer money originally, I ensure myself profitable business in the future.

Even as has happened on occasion, the customer does not give me their subsequent business, I still feel comfortable with the money that I made on the installation. That money was nearly pure profit without any hard, up front cash investment on my part.

So, just because you're only an average locksmith, don't let the "big dawgs" trick you into thinking that you can't hunt with them. There are plenty of good, high-profit, big-dollar jobs out there. Regardless of your business' size, number of employees or financial status, you can get your share of them.

"Y'all jes' have t'be willin' t'hunt with the big dawgs, and not stay on the porch .... Bubba!"

SOUTHERN STEEL 10125 MORTISE LOCK

"This lock resembles model 10110 in appearance and size but several features are different between the two."

This month we are going to look at the Southern Steel model 10125 Institutional Mortise Lock. This lock resembles model 10110 in appearance and size but several features are different between the two. Look at the specifications:

10125E Fail lock (knobs locked when power is NOT applied).

10125EP Fail unlock (knobs locked when power IS applied).

Lock Size: 4-5/8" x 1-1/4" x 9-1/2"

Lock Weight: 11 pounds

Bolt size: 1-3/8" x 5/8"

Bolt throw: 5/8"

Applications:

Swinging doors in low security housing areas where electric and/or manual operation is desired. Door position indicator switch, door closer and power transfer hinge are recommended.

Function:

Electric–Remote push-button switch activates a solenoid which locks and unlocks *knobs*.

Mechanical–Lock bolt retracted by mogul cylinder and by knobs. Knobs locked out and unlocked by mogul cylinder. Automatically deadlocks upon closing when knobs are locked out.

Standard finish: US4 (optional US26D)

Cover case and faceplate: Yellow brass

Lock bolt: Stainless steel

Mogul cylinder: Yellow brass

Mogul keys: Silicon bronze/copper alloy

Pin tumblers and engaging balls: Stainless steel. Five tumblers per lock.

Electrical: 24 VDC, 0.3 amp

Standard Features:

Fail lock or unlock

Light indicator switches in lock

Strike with fasteners

Day keyed cylinder

Knobs and/or pulls-US4

Special Features:

Safety knobs- specify SK when ordering

Service and preventative maintenance:

Check often for foreign objects in keepers.

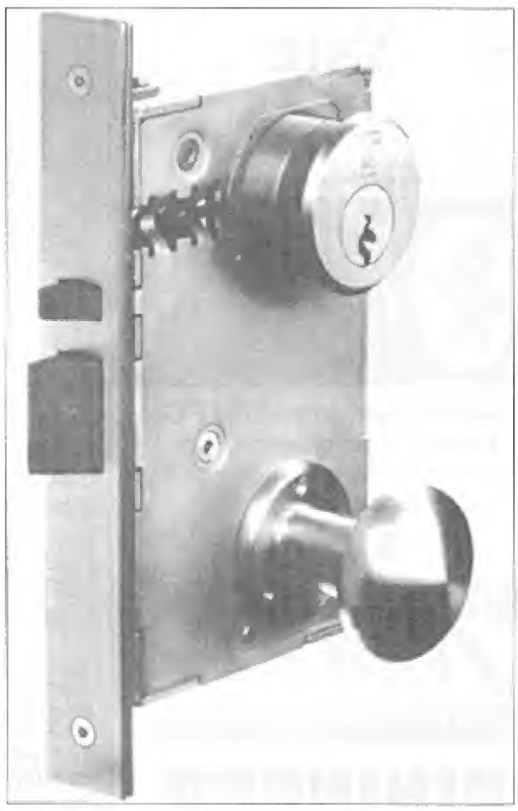
Check for rough operation.

Spray silicone lubricant on all moving parts every three months.

Check for any loose screws and tighten. (Once a month is recommended.)

Check for correct light indications.

When installing this lock, all the standard tolerances are in effect. If you find that the top or bottom of the strike bolt is riding on the top or bottom of the strike keeper, then file on the keeper. NEVER file on bolt surfaces.



The Southern Steel 10125 and 10128 mortise lock.

I want to cover the model 10128 also at this time. The lock is the same as described above for the 10125 but is strictly mechanical. No electric operations are possible with this lockset. In the function part of the lock description, this lock only allows the knobs to be locked out and unlocked by the mogul cylinder. All the other features are identical.

I would like to ask the readers of this column to continue the questions to this magazine regarding anything about the Jail and Detention field. I would like to hear from some of you concerning the different type of locks you may have worked on in various institutions around the country and world.

LIGHTER SIDE

The Hole Story

by Sara Probasco

"What would you charge me to go out and put a couple of deadbolt locks on my house?" one of our frequent customers inquired, one afternoon.

"Well, now, I don't know, Brumly. That depends on how soon you need it done and what kind of mood I'm in, at the time," Don sparred, smiling.

"Say I wanted it done today—right now. How much would it cost me?"

"Which house are you talking about? The one you keep your family in, or your mansion in the hills?" Don tried to maintain a solemn expression, but he wasn't very successful.

"The only one I got—that little shack just north of here, about ten miles."

A highly successful rancher in the area, Brumly and his family lived in a lovely ranch-style house in the edge of the hills. Over the past three or four years, he had given us all of his lock and key business, and he and Don had developed the friendly banter they both enjoyed.

"Well, let's see." Putting pencil to paper, Don began figuring. "There's the trip charge, mileage, installation. You say you need two put in?"

"Let's go with three," Brumly said.

"Do you already have deadbolts in the doors that we'll be replacing, or will I need to drill holes?"

"You'll be starting from scratch," Brumly said.

Don showed him the column of figures, pointing to the bottom line. "Here's your price for installation. That'll be plus the price of the deadbolts and plus sales tax."

"My word, man, at those prices, you ought to throw in the deadbolts. What's all this trip charge, mileage, and labor stuff? All I want is a couple of locks put in. I didn't know I'd be paying for you to go on a vacation." Brumly's voice was gruff, but there was a twinkle in his eyes.

"Just so you'll understand the way business works: the trip charge pays for my time away from the shop and the wear-and-tear on my service van to get me to the city limits; mileage pays for the van from the city limits on up to your place; labor pays my time installing the locks, after I get there."

"Man, you don't miss a trick, do you?"

"Can't afford to, these days, and stay in business. You will notice: nowhere in there is a charge for the locks. However, you may also notice, I didn't charge you anything for the aggravation of dealing with you, or for the added expertise of having me come up there and do the job personally. Consider yourself lucky."

"How much are the deadbolts?"

"That depends upon which ones you choose." With a sweep of his hand, Don indicated the choices available, as displayed on a large revolving stand.

"I want something good and cheap," Brumly said.

"You can't have it both ways," Don replied. "Of course, if you want to install them yourself, you can save all those extra charges and I can get home to dinner at a decent hour, for a change."

Always ready for a challenge, Brumly perked up at the idea. "How hard is it to do?"

"There's not much to it, if you have a good hole saw the right size," Don replied. Then he went on to describe the process in detail. "You just want to be sure you don't run your saw backwards," Don said jokingly.

Brumly pretended to ignore the jibe. "Let me have three of these, keyed alike," Brumly said, pointing at his choice on the display. "I'm going to do it myself, just for the fun of it."

"Do you want me to pin these to match the key to your entry locks?"

"How much will it cost me?"

"Today, it's free, with the purchase of the deadbolts. Tomorrow, I may change my mind," Don quipped.

"Do it," Brumly said, tossing his house key on the counter.

A couple of weeks passed, before Brumly was back in our store again having some keys made.

"By the way," Don asked above the whine of the key machine, "did you get your deadbolts installed all right?"

When Brumly did not reply, Don glanced up at the man. Brumly stood at the counter, looking at Don, his mouth twisting slightly.

"Did you have any problems?" Don prodded.

"You just don't know when to leave something alone, do you? You'll be happy to know, I'll never try anything like that again. It would have been a whole lot cheaper on me, if I'd had you come out and do it, in the first place."

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BUSINESS BRIEFS

News from the Locksmithing Industry

Industry Interview...

Working your way up in of one of the world's largest door hardware manufacturing companies tends to give you an expertise and perspective that few others may hold. For locksmiths involved with door hardware, an installation often doesn't go beyond choosing the function and finish. For the marketing manager of a major manufacturer, however, knowing where the industry has been and where it's headed are an added and necessary ingredient to being successful.

Martin Burkhardt

Starting 23 years ago, Martin Burkhardt began his door hardware sales and security career working for a contract hardware distributor.

Five years later he began working for the Schlage Lock Company. Working with one of the largest door hardware manufacturers in the world, Burkhardt observed the industry grow over the last 17 years and now serves as Schlage's Commercial Marketing Manager.

What has Burkhardt observed in that time?

"The most dramatic change I've seen," says Burkhardt, "is the awareness and attention given to key management. Companies are no longer brushing this issue aside. There is much more concern for planning with respect to key management."

Of course, the attention being paid to key management was not born in a vacuum. Burkhardt points to the 1980's as the beginning of this trend.

"The '80's," said Burkhardt, "were simply a time of recognition. The media as well as various seminars played a major role in making people aware of the need for better security through better key management.

"Eventually, the concern for security and key control started expanding from the hotel industry into other fields,." he stated.

"Now we've moved from the awareness stage of the '80's to the action stage of the '90's. There's a desire by all fields to better protect their people and property. Key management is one way they are accomplishing this."

Asked what direction the market is heading, Burkhardt responds:

"Our (the door hardware) industry is being affected in two ways," says Burkhardt. "First is legislation.

"Because of ADA (American's With Disabilities Act), over the years we have had to create some very unique and specific products. Levers are an example.

"The thing to understand, however, is that disabled refers to more than a person in a wheel chair. There's the blind, the deaf, etc. Hardware now has to be made that suits their particular needs."

"Second," continues Burkhardt, "is key control. As stated earlier, companies are becoming increasingly concerned with protecting their employees and their property. Hotels are concerned with the security of their customers. Expensive equipment is packaged smaller and is easier to walk off with, computers for example."

Burkhardt's prescription for keeping the locksmith a part of the future involves a better understanding of who and where the locksmith is and belongs.

"The locksmith needs to analyze the dynamics of the market," says Burkhardt, "he needs to evaluate and ascertain where he fits in.

" Currently the locksmith fits into the picture, but he (the locksmith) may not recognize it yet."

For the future Burkhardt also sees the locksmith in a new and different capacity, working with the large chain stores that currently sell door hardware.

"These large outlet centers are inevitable for the future," said Burkhardt. "The locksmith is quite capable of working alongside them through better marketing.

Continued on next page

Industry News...

The North Carolina Locksmith's Association, Inc. held their election of officers for the 1994-1995 and they are as follows:

President	Ralph Resch, Jr.
1st Vice Pres.	Pete Bourey
2nd Vice Pres.	Reid Skinner
Treasurer	Howard Kincaid
Asst. Treasurer	Jimmy Hapney
Sgt. at Arms	Lawrence Couchenour
Asst. Sgt. at Arms	Ray Wiler, Jr.
Board Members	Ron Cox
	Jim Stewart
	Joe Estridge
	Steve Bright
	Doug Wilmoth
	Bobby Jackson
	Kathy Stewart

Andrew J. Meade, President of **Lori Lock,** has announced his company's acquisition of **Delta Controls,** formerly of Plainville, Connecticut, is a leading manufacturer of mechanical security and door control devices, with worldwide distribution. Delta Controls is a designer and manufacturer of door control equipment and systems components for the protection of people and property, including devices that specifically address the objectives of the Americans with Disabilities Act.

1993 members of the **Greater Philadelphia Locksmiths Association** Challenge Team rode 150 miles in the Multiple Sclerosis City to Shore Bike Tour. The team raised over $1300.00 for MS, thanks in part to industry sponsors A&B Safe Company, American Lock & Supply Inc. and Clark Security Products. All team members were among the first 15 riders to cross the finish line in Ocean City, NJ, out of nearly 3500 participants.

(Clockwise, from top left) Ron Marcinkowski, Cliff Shafer, CML, Bill Young, CML, and Jack Magee.

Chicago Lock Company, Chicago, Illinois, and **CamLock Systems** of Eastbourne, England, Paris, France, and Alsip, Illinois, have formed a co-distributorship agreement to market each others products world wide. The agreement was announced by Dale N. Padjen, newly-appointed Sales/General Manager of Chicago Lock Company((CLC), who has rejoined the Company from CamLock.

Arius, Inc. announced that Frank Mastrolonardo has joined the company as Regional Manager for Arius' western region. He will be responsible for eight branches which service dealers in Arizona, California, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

Frank Mastrolonardo

With Robert Hand as the new Vice President of Sales and Marketing, **S. Parker Hardware Manufacturing Corporation,** is positioned to seize leadership in the consumer door hardware field. Mr. Hand comes to S. Parker with over two and a half decades in sales management, culminating with the Vice Presidency of Sales and Marketing for Arrow Fastener Company, Inc. where he helped that company more than double in size.

Lockmasters®, Inc., has appointed Chuck Robertson, CML to the position of Chief Instructor. Chuck began his new duties October 18, 1993, at the Nicholasville, Kentucky based corporation. As chief Instructor, he will carry on the proud traditions of the Lockmasters' training staff that started in 1955. This unswerving commitment to provide the finest hand-on training in the industry has been and will be the guiding force behind the Lockmasters training department.

INDUSTRY INTERVIEW

Continued from previous page

"Even though the outlet center can offer hardware, they can't offer service, they can't offer proper application consulting. Locksmiths can.

"Locksmiths need to see their value added services, they need to understand that security is more than a lock. They need to position themselves as security professionals," said Burkhardt.

"For the '90's, people are going to want everything faster. They're going to want service faster, they're going to want access to people faster, they're going to want security instantly!

"There's a move towards better management, increased trust, a move towards 'partnering.' If he or she is going to survive the '90's, the locksmiths need to see themselves as and put themselves in the position of 'partner' with their customers." Burkhardt adds.

"Customer service needs to start the second the phone is answered.

"Long term relationships with customers is paramount to the locksmith's success."

Technical training is also an important factor for success in the '90's, says Burkhardt.

"Locksmiths need to continue their training through the local associations and through manufacturers.

"Associations need to take leadership in training, offering classes in electronic and mechanical applications. Getting involved with manufacturers for training with the different types of equipment," he said.

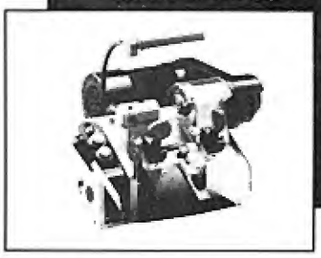
Concluding, Burkhardt adds, "The locksmith will only fail if he or she lacks vision and direction within the industry. We understand this and have made the locksmith a part of Schlage's future plans."

The National Locksmith

ENTER THE TECHNITIPS 1994 CONTEST

$ $ $ THOUSANDS IN CASH & PRIZES $ $ $

FIRST PRIZE — Silca's Bravo USA

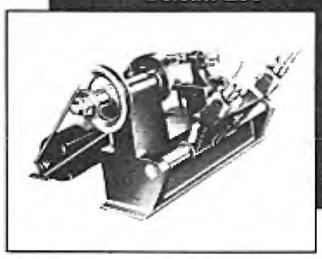


Locksmith designed, the Silca Bravo USA is a quality semi-automatic duplicator. Four-way jaws hold even the smallest keys as this. One of the most accurate key machines on the market.

SECOND PRIZE — HPC's Punch Machine™

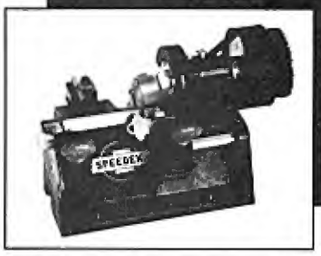
The Punch Machine™ (1200PCH) is HPC's newest addition to the 1200 series key machines. It works on the same principle as the 1200CM, making it quite versatile. It is also very accurate and completely portable.

THIRD PRIZE — Belsaw 200



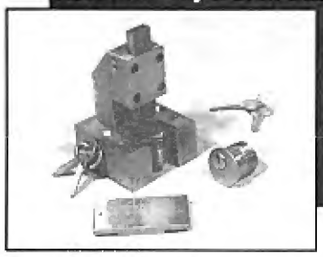
Duplicate, cut by code, cut flat steel keys. Complete machine with motor, three cutters, guides, and instructions. Built in micrometer.

FOURTH PRIZE — HPC 9120



HPC's most compact key cutting machine features reversible jaws. Double-sided copy dog cuts flat steel and safety deposit keys and has softy brush. Excellent versatile machine.

FIFTH PRIZE — Accumark Key & Lock Stamp



For the easiest and straightest way to coin. The Accumark stamp holder provides accurate stamping of keys and mortise lock faces. Includes holder, mortise cylinder attachment and a custom stamp.

SIXTH PRIZE — $100 Cash & Flat Rate Manual

$100 in cash will brighten your day! So will the *Flat Rate Manual for Locksmiths*. The manual will help you price your services for profits. You won't ever have to guess how to price again.

CODE BOOKS FROM The National Locksmith®

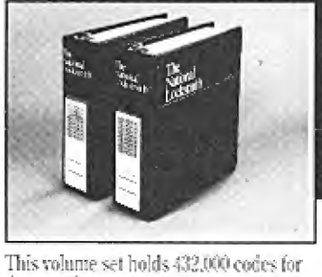
SEVENTH PRIZE — General Code Book Set (NGCB)

These three books contain 430,000 codes covering domestic lock and automobile codes.

EIGHTH PRIZE — Padlock Code Book Set (NPCB)

These three volumes offer 462,000 codes covering Dudley, American (Junkunc), Master and Yale.

NINTH PRIZE — Foreign Code Book Set (NFCB)



This volume set holds 432,000 codes for the complete variety of foreign codes, from Alpha Romeo to Yugo.

TECHNITIPS

Helpful hints from fellow locksmiths

by Jake Jakuwbuwski

Send in your tips and win.

HOW TO ENTER

All you need to do is submit a tip, covering any aspect of locksmithing to ***The National Locksmith.*** Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Why not write it down and submit it to: *Jake Jakubuwski, Technitips' Editor,* ***The National Locksmith,*** *1533 Burgundy Parkway, Streamwood, IL 60107.*

Tips submitted to other industry publications will not be eligible! So get busy and send in your tips today. You may win cash merchandise, or even one of many key machines or code book sets. At the end of the year, we choose the winners of the listed prizes. Last year dozens of people walked off with money and prizes. Wouldn't you like to be one of the prize winners for 1994? Enter today! It's a lot easier than you think.

EVERY TIP WINS "LOCKSMITH BUCKS!"

Yes, every tip published wins a prize. But remember, you must submit your tip to ***The National Locksmith*** exclusively. Each and every tip published in Technitips wins you $25 in Locksmith Bucks! Use this spendable cash toward the purchase of any books or merchandise from ***The National Locksmith***. You will also receive a Bonded Locksmith bumper sticker and decal. Plus you will be eligible for really big prizes.

BEST TIP OF THE MONTH

If your tip is chosen as the best tip of the month, you will win $50 in cash as well as $35 in Locksmith Bucks! Plus you will receive a Bonded Locksmith bumper sticker, decal and a Locksmith cap. Plus, you may win one of the annual prizes.

These Prizes Awarded Each Month!

- All-Lock A 7000 VATS Decoder
- HPC Pistolpick
- Silca Rubberhead Keyblanks (100 Blanks)
- ESP PR-13 Professional Lock Pick Set
- Sieveking Products EZ-Pull GM Wheel Puller
- Fort Lock Backer Board Display Panel

Submit your tip and win!

March's Best Tip

This tip concerns quickly generating a key by sight reading the door lock wafers on various Mazda vehicles (MPV, Miata, Protege, 323 and MX5) that use the X186 (MZ17) keyway and up. I'm sure it will work on other Mazda models that use the 10100-12099 code series which Mazda first used on the 1989 MPV. Even if you are not skilled in wafer lock reading, (I recommend Bob Sieveking's book, *Wafer Lock Reading* from *The National Locksmith*) this lock is easily read.

As you are probably aware this code series lists ten cut positions. The first eight operate the ignition, and the last eight operate the other locks on the vehicle. There are five depths. What you may not be aware of is that these codes follow a consistent pattern of odd-even, or even-odd. That is, if spaces 1, 3, 5, 7, 9 are odd depths, then spaces 2, 4, 6, 8, 10 are always even depths. The reverse is also true.

To take advantage of this,examine the passenger door lock. You will see it contains eight wafers, four at the top and four at the bottom. These eight spaces represent positions three through ten on the key. Either the top or the bottom will contain all odd (1, 3, or 5) wafers and the opposite will contain all even (2 or 4). Determine which part of the lock is odd by the presence of three wafer depths (1, 3, 5) or an extreme variation (1, 5). Read each side accordingly.

Since the consistent odd-even pattern creates an effective depth differential of .078 (0.39 x 2), I think reading these locks is a snap, and with just a little practice you can generate a key in ten minutes or less.

At any rate, cut your known depths on the proper key blank and add a 1 or 2 cut in space one or two, depending on the odd-even pattern From that point it is just a matter of progressioning or impressioning the first two cuts.

For those of you who don't want to sight read these locks, the code can usually be found on the passenger side door lock.

Pete Gamble
North Carolina

All-Lock Vats Decoder Winner

A customer brought in their Volkswagen Jetta with a malfunctioning trunk lock. The key would turn to the unlocked position but when the button was pressed the latch would not release the lid.

After removing the trim and gently prying the lock body off the trunk I discovered that the linkage was disconnected from the latch which is about 6" below the lock body. Since I could not fish the linkage up from the hole where the lock was, I looked for another means of getting into the trunk.

This vehicle has a small access door in the middle of the rear seat which is anchored with four hex nuts. I removed the door and using my drop light, found that the latch was secured to the lid with two phillips head screws. Using a long screwdriver, I unscrewed the screws, the latch dropped away and the trunk was open.

Before reassembling everything, I put more of a bend on the linkage where it went into the latch, threaded it to take a 6/32" nut and double nutted the rod to keep it in place. The next time I encounter a similar situation on a Jetta or other V.W. I'll look for the access door first.

Robert Hart,
New York

HPC Pistol Pick Winner

Thanks for selecting me as one of your yearly prize winners! The new machine will come in very handy. Here's another tip for you. I was servicing a foreign knob set the other day and when I tried to pry the tru-arc ring off the back of the plug the ring shattered. I didn't think this would be a problem until I tried to reassemble the plug after I serviced it.

I found out that I did not have a single ring on my truck that would fit this plug and hold it in place. To save myself a long round-trip into town and back I decided to see if I could make a retainer.

I took a piece of round spring stock, with a diameter that was larger then I needed to fit into the slot around the plug, and cut it just slightly longer then I would need. Then I found a drill bit that was slightly smaller than the diameter of the slot in the plug.

Using vise-grip pliers, I clamped one end of the spring stock to the shank of the drill bit. Then I bent it around the shank of the bit. I bent the excess spring stock material about 180 degrees and trimmed off what I didn't need, until I had a ring that looked like illustration one.

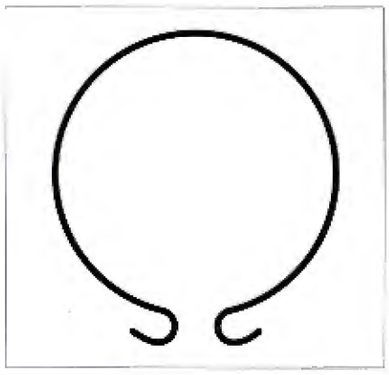


Illustration 1

Now, I had to flatten the round stock so it would fit into the groove in the plug and not work lose. I did this

by placing the ring I had made, flat on a small piece of scrap wood and hit it with a hammer. That drove the ring into the wood and held it steady while I ground one side flat with my Dremel tool. Then I pried the ring out, turned it over, hit it with the hammer again, and ground that side flat.

It took a couple of re-grinds to "touch up" my "new" tru-arc ring so it would fit in the plug's groove properly, but it "snapped" solidly into place. The whole procedure took about twenty minutes and was quicker then driving back to town to find the right part.

Jay Christie
North Carolina

Silca Keyblanks Winner

Here's a simple little trick to help speed up the impressioning of Ford five pin ignition locks.

Since the "ears" on the ignition get in the way when I rock the key up and down to get my marks, I grind down the head of the blank to give me more room to work. (*See illustration 2.*)

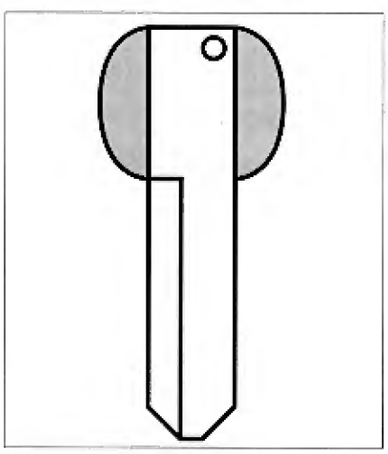


Illustration 2

This simple modification cuts down on a lot of frustration for me, and I try to keep ten of these prepared blanks on the truck.

Of course, I never give the customer the impressioned key, but cut them two copies of the key I just made.

Bob Bardoff
Maryland

ESP Lock Pick Winner

I was called to open a 1993 Toyota Corolla. When I got to the car, I found out that I could not pick the lock open and I could not get the linkage to move with any of my foreign car tools. Since the car was running, the customer was getting impatient.

Seeing that the door had a vertical lock, I reached for my Slim Jim. I put about a 10 degree inward bend in the tip, inserted it in the door. I saw the button wiggle when I touched the rod. When that happened, I pulled up on the tool and the button moved up about 1/2" but would not unlock. I just could not pull the button up far enough.

Remembering something that I had read in an earlier tip about unlocking cars, I pulled up on the tool as far as it would go, and pulled on the door latch while keeping a gentle pressure on the linkage. The door opened! You can pull the button up far enough to let the handle operate the latch, but the door is still locked. I

have since used the same technique to open another '93 Corolla and a Mitsubishi van.

Charlie Fusch
Iowa

E-Z Pull GM Wheel Puller Winner

Here's how to make, and use, a 10-cut Ford door lock decoder from a Curtis SC6 keyblank (the old Schlage wafer door knob key).

First, take the Curtis SC6 blank (or it's equivalent) and cut the tip off square. (*See illustration 3.*) Then file both edges of the key blank until the blank will enter the hole at the rear of the door lock after the pawl has been removed. Using the larger tumbler ward, insert the key making sure it goes completely to the front of the lock. (*See illustration 3.*)

Remove the decoder key and insert a Ford (H-60) blank completely into the lock. Now, using the decoder key, insert the decoder until it contacts the first wafer (the sixth cut from the bow). File a notch in the decoder key to index the tumbler being worked on.

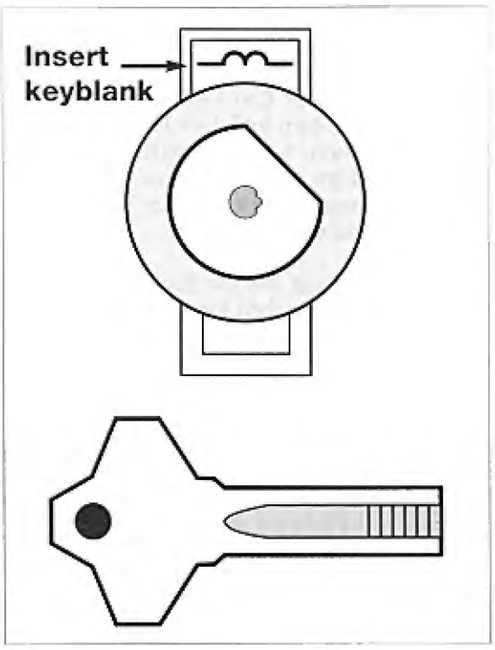


Illustration 3

Then cut the Ford key to a 2 depth in that space or cut and try the decoder key. If it passes over the wafer, the cut is a 2, if it does not, cut that space in the Ford key blank to a 3 depth. Continue cutting the Ford key until the decoder key moves past the index mark and contacts the next wafer.

Repeat this process for each space and tumbler in the lock, until you have a working key. The decoder key will be notched like the one in the illustration three. If your decoder key "skips" a space, then that cut is a 1 depth.

Since using my decoder key, I have put away my glasses, peep-light and bore scopes. With few exceptions (like Town Cars with the newer style handles), I can now decode Ford 10-cut door locks easily ....even in the rain and the dark.

Charles L. Sullivan
New Jersey

Fort Lock Display Board Winner

An ordinary, heavy-duty rubber band can be your "third" hand when installing locks. Simply put the latch in the door and before putting the

exterior knob on, wrap a rubber band tightly around the "throat" of the outside knob. Put the knob in position and pull one end of the rubber band over the latch. (*See illustration 4.*) The knob will stay firmly in place until you screw the inside knob on.

You can also use this trick when installing deadbolts. Just extend the bolt, put a key in the outside cylinder, wrap the rubber band around the key and pull it over the extended bolt. Then, simply screw the thumb piece or inside cylinder in place.

Elmer Neset
Minnesota

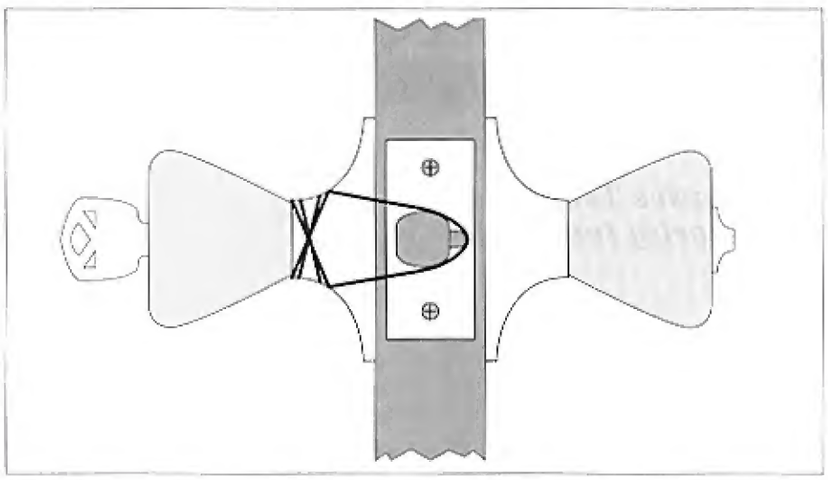


Illustration 4

We have had to make more, and more room, for automotive door and trunk lock face caps. Even though we keep ours in plastic boxes, it seems that once they're out of the bag, they wind up everywhere and it is difficult to tell some of them apart.

Our solution to the problem was to write the part number on the inside of each cap with a magic marker. That way we can easily identify them (no matter where they're found), and the writing cannot be seen once the cap is installed.

Blaine Lucas, CML
California

Faced with a lock out at a school, I found that neither the master key nor the change key would operate the lock. I felt that a pin or master wafer was jammed, or a spring had collapsed.

I lubricated the lock, and ran an uncut key back and forth in the lock while gently, but firmly, tapping the top of the knob. Then, I inserted the master key, and while putting turning pressure on the key, continued to "tap" the knob. The lock opened.

Brad McKenzie
Ohio

BITS & PIECES

Informative Tidbits for the Security Industry

by Tom Seroogy

A General Motors bulletin shows that the 1989 to 1992 Cutlass Supreme has a recurring handle and latch problem that needs correction. According to the bulletin, the problem experienced is the inability to open the car door using the inside release handle, even when the door is unlocked. This may be an intermittent or continuous problem.

Apparently the cause of the problem lies in the design of the outside release handle. The latch release linkage rod going to this handle rests inside of and is activated by a saddle like armature on the back of the handle. (*See illustration 1.*)

Under normal operation, the widened part of the linkage rod is supposed to rest in the pocketed area of the armature. However, the design of the armature allows for the rod to slide up and out of the pocket and rest below the flat side of the armature. (*See illustration 2.*) At this point there is enough pressure on the latch release mechanism to bind the operation of the latch, rendering the inside release handle inoperative.

To solve the problem, the bulletin recommends removing and modifying the handle armature; filing a radius in the armature per illustration three. Once the filing is complete, remove any burrs and touch up the filed surfaces to stop corrosion and insure proper operation. (*See illustration 4.*) Replace the handle.

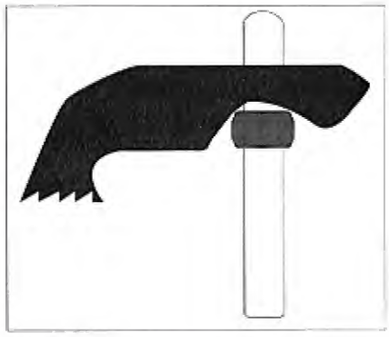


Illustration 1

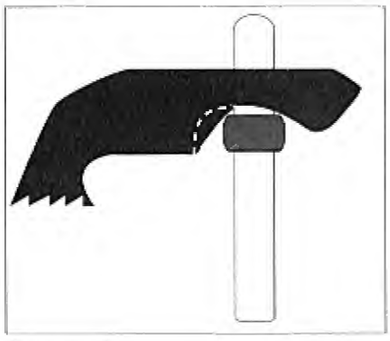


Illustration 3

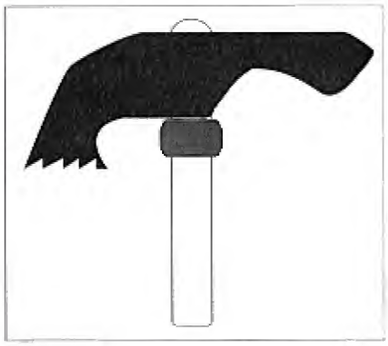


Illustration 2

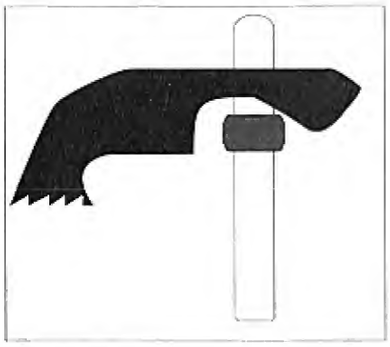


Illustration 4

Any locksmith working on these vehicles should advise their customer of such a problem, reducing your chance of an unwarranted call back.

The new 1994 GM code series currently used on the 1994 GM N body vehicle is going to be utilized in the 1995 Chevrolet ST Blazer and CK Suburban. The key for these vehicles will have the same profile but will utilize a shorter blank with a different head style. The Briggs & Stratton keyblank part #596222 is the new key.

By the way, these two vehicles are employing a new Saginaw column. We'll try and get the tear down for you next month.

Jet is offering a new line of blanks called the "Silver Line." The new blanks are made of nickel silver and are guaranteed to be better than the original manufacturer's production keys.

Jet's new Silver Line four color catalog list their initial new keyblanks. They consist of blanks to fit Arrow standard and interchangeable core, Best's new longer key blade, Falcon, Medeco, Sargent, Schlage and Yale.

Silca's new key releases include:
FO34 and FO34P for the 1994 Ford Aspire; CY23 for the 1994 Chrysler valet; YM30BP for the 1993-94 Saab 900; KW15BP for the 1993-94 Kawasaki; FO32R and FO32RAP for the 1993-94 Ford Probe; and, HU64P (primary) and HU65AP (secondary) 1993-94 Mercedes C180-200-250-280.

Dave McOmie's December article incorrectly listed the address for Owe Bengtsson. The correct address should read as follows: Owe Bengtsson, Sesam Lasservice, Nordhemsgatan 29, Box 7058 - 40231 Goteborg, Sweden.

Continued on page 93

G'DAY LOCKSMITHING

"I was not really expecting to find a group of locksmiths with the qualifications and technology to equal that of the locksmiths in the U.S."

by Marc Goldberg

In a country where eating kangaroo meat has recently become legal, the state of the locksmith industry has reached an advanced level which might surprise people from other countries. Australia is an enormous country, almost the size of the United States. Yet, unlike the United State's with a population of 250 million, Australia has only about 18 million people, mostly clustered in cities along the coastline.

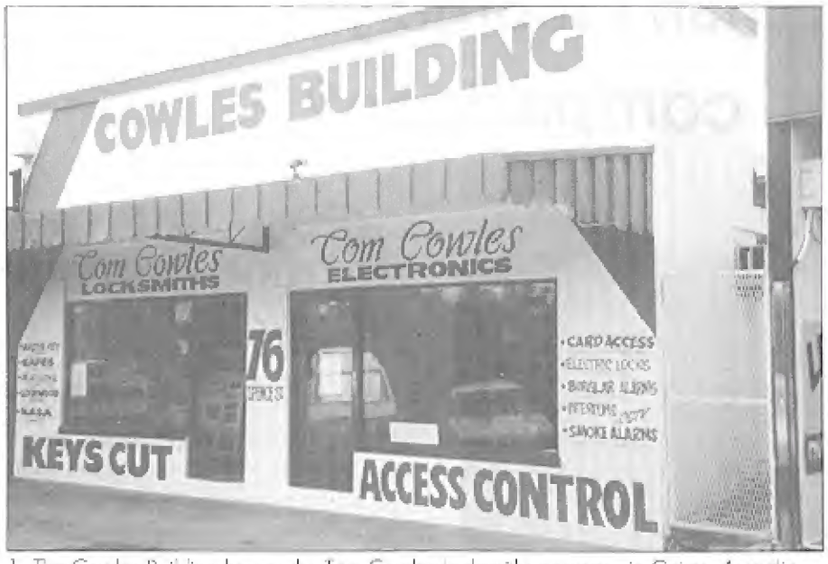
So I have to confess that I was not really expecting to find a group of locksmiths with the qualifications and technology to equal that of the locksmiths in the US. In fact, in some ways, the state of the industry in Australia may even exceed that of our industry at home. But more on that later....

I came to Australia in order to attend the 1993 Lock Expo organized by the Master Locksmith Association of Australia (MLAA). In fact, I was asked to deliver the Keynote Speech for this event, which I was honored to do. However, by no means was I the only foreign guest in attendance. Silca took the opportunities offered by the show to host a meeting for their European distributors. Thus, not only present was upper management from Silca's headquarters in Italy, but also their distributors from South Africa, Sweden, UK, Austria, Denmark and Netherlands.

Also present from the US were Alan Blitstein and Francine Hoffman from HPC, Dick Brandon from Auto Security Products, and Bill Sayre of American Lock Co. Locksmith Supply Company of Melbourne, Australia played host to virtually all of the foreign guests, and they made sure we all saw the best of the local sights. Proprietors Stuart, Margaret, Mark and Helene Johnson all did their best to ensure that each visitor had the best possible time.

I was impressed with the number and quality of the booths set up for the show. Each "stand," as they call them, is set up with a great deal of care. In fact, a competition was judged by the MLAA, and Locksmith Supply Co. was presented with a large trophy for having the best booth.

I think there are a couple of main reasons why the locksmith industry in Australia seems so professional to me. In order to join the MLAA, one must first pass through some tough testing



1. The Cowles Building houses the Tom Cowles Locksmiths company in Cairns, Australia. The business has many trucks and employees as well as a wide range of machines.

2. Shown here at their stand is the crew from Silca, Italy, along with their distributors from Europe. The folks in the back wearing normal clothes, are (from left to right) Stuart, Mark, Helene and Margaret Johnson.

Continued on page 80

Continued from page 78

requirements to prove competence in various areas of the trade, such as masterkeying, lock installation and safe work. In this case, although there are a couple of other groups, a locksmith cannot join the MLAA until he has already become a skilled locksmith. Of course, further educational classes are also conducted by the association.

Plus, the MLAA benefits through the sale of patented keyways. The group owns the patents, and subcontracts out the manufacturing. When selling equipment, the MLAA collects a royalty. Also, the customer receives a quality guarantee. Of course, good key control is assured this way, because only members may buy blanks.

Another factor helps maintain the level of professionalism among the locksmiths in this nation. There is a well organized apprenticeship program available to qualified candidates. After finishing high school, a person can apply for the program through a college called TAFE. This is a technical college authorized by the government.

The apprenticeship works like this. The student spends one full day per week in the college classroom studying his locksmith courses. He spends the other four days per week working at an approved lock shop, taking on-the-job training. The apprenticeship lasts four years.

Another advantage is that the apprentice is paid while he takes his training. Starting rate is $150 a week, and it increases to over $400 a week. The apprentice is paid by the locksmith for whom he works, and the locksmith is reimbursed for a percentage of the wages by the government. Often, the locksmith hires the apprentice when training is complete. Thus, locksmiths have access to fully trained employees.

The apprentice program covers automotive, door closers, electronics, hand tools, key cutting, lock opening, machinery, masterkeying, safe opening and safe service.

I think it is terrific that together, private industry and the government have devised this plan for training and employing young people. When they have finished their course, the apprentice has passed a series of 24 exams as well as practical tests. For example, each apprentice must completely build his own miniature working safe from scratch.

I saw a few examples of these safes at the convention and I was amazed. Max Cherry, an instructor of locksmithing, explained to me that the apprentice first welds a safe body, and they manufacture their own door for the safe. Later, they design and make the boltworks. Finally, late in the course, each student fabricates his own safe lock, complete with relockers. Each part is made by hand except for the springs and lever.

Steven Granger, a 21 year old apprentice, says, "Most of our family are butchers. But a cousin is a locksmith and I liked it. If you want to do well as an apprentice, you have to knuckle down and work hard." Steven mentions that he has traveled to the US. In New York, one locksmith asked him how he entered the trade. The American locksmith was very surprised to learn about the extensive training program in Australia.

During the convention, I spoke with many, many locksmiths who are regular readers of *The National Locksmith*. You may be surprised to learn that we have a great many subscribers there. Locksmith Supply Co. organizes the subscriptions for us in Australia. Their customers can order the magazine and their key blanks at the same time.

3. Your Editor shakes the hand of a local resident, native to Australia

In conclusion, I would particularly like to thank the Johnson clan for all their hospitality. I really had a "G'Day, Down Under!"

THE STOPLOCK WINDOW LOCK

"The new Stoplock is a simple to install device which can prove very profitable for the locksmith. Installation takes about 15 minutes with basic equipment."

by Tom Mazzone

A very common request by homeowners has been what to do for security on narrow stile aluminum sliding windows. The choices in which to combat this problem have been minimal until now. The new Stoplock distributed by Problemsolvers, is a relatively simple to install device which can prove to be very profitable for the locksmith. Installation takes approximately fifteen minutes and requires very basic equipment.

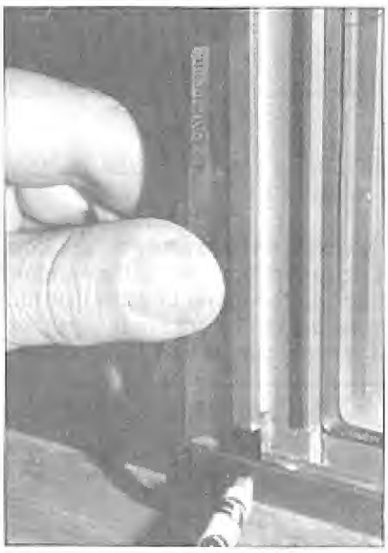
The tools used for this job were a cordless drill, various high speed drill bits and a #2 Phillips screwdriver.

To begin installation, make sure that the window is in the fully closed position. Eliminating this first step can cause alignment problems later during installation.

Place the Stoplock at the bottom of the window, flat against the stile. Mark a line with a pencil on each side of the lock lever onto the horizontal window track. (*See photograph 1.*)

Measure down 3/16" and centered between the two lines. At this mark, drill a 3/16" hole through the track rail. (*See photograph 2.*)

Next, position the lock with the locking finger through the hole just drilled in the window track. Taking a pencil, scribe a line through the lower slotted hole and drill a 1/16" pilot hole in the window frame. Drill slowly and carefully here to avoid hitting the glass with the drill bit. Drill bits and glass are not a happy couple and can

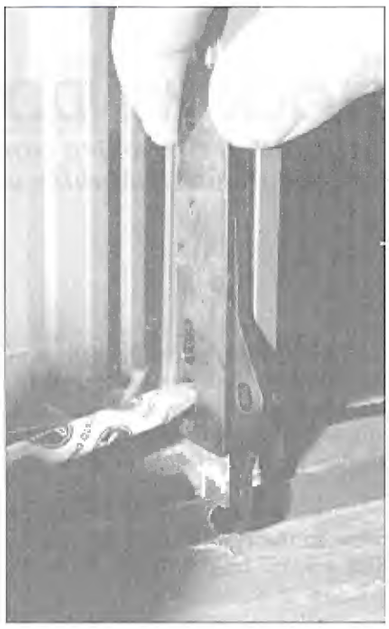


1. Mark a pencil line.

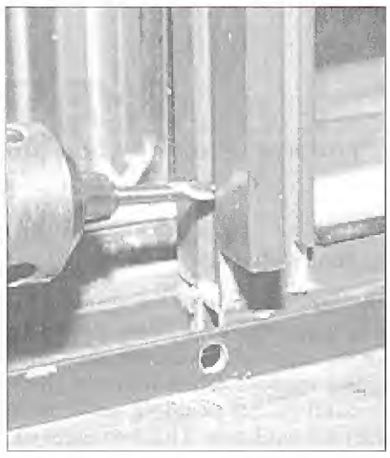
2. Drill through the track.

make for a very costly mistake. (*See photograph 3.*)

Check very carefully to see how much room is between the window stile and the glass. Be sure that the mounting screws are not too long for your application as well. Using an 1/8"



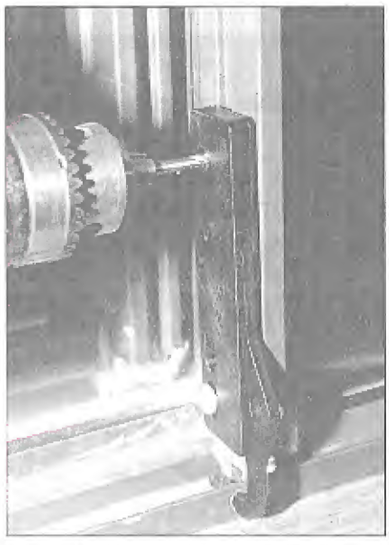
3. Scribe a line.



4. Bore the screw hole.

drill bit, bore the lower mounting screw hole using the pilot hole that you just drilled. (*See photograph 4.*)

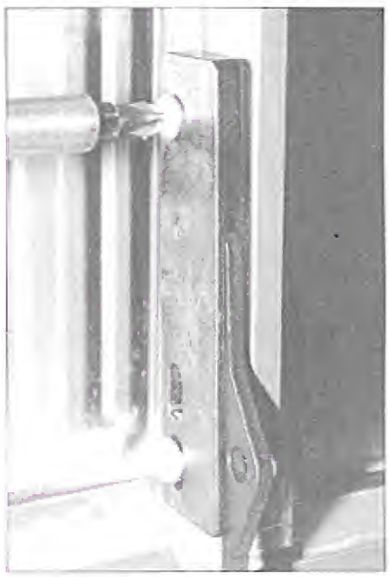
Align the locking lever through the hole in the track and install the first mounting screw and tighten only until it contacts the lock. Mark your upper hole and drill using the aforementioned procedures. (*See photograph 5.*)



5. Install the first mounting screw.

Align the assembly to operate smoothly then tighten the mounting screws. Remember you will most often be working with aluminum so do not over tighten. (*See photograph 6.*)

Overall, the installation is very simple to perform and basic in principle. This can be a real money maker and should be a very easy sell



6. Tighten the mounting screws.

to homeowners. The manufacturer seems to have researched the application and has made it adaptable to most types of sliding windows on the market.

For more information contact: Problemsolvers, 48 Purnell Pl., Manchester, CT 06040, (800) 397-6980.

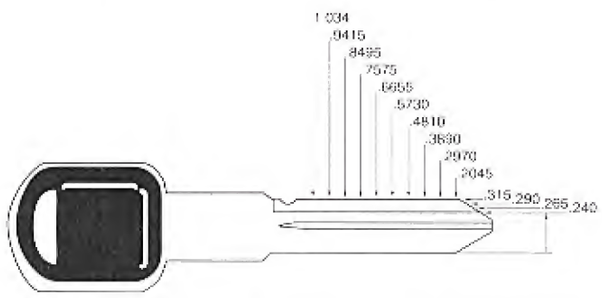
Coming In April's Issue

- Personal Protection. A new source of income to the market minded locksmith.
- Start the tour of Grade 1 and 2 knobsets. Starting with Kwiksets Titan.
- New '95 GM changes revealed.

KEY CODES

1994 GM Codes

MR00-MR99, PZ00-PZ99, P000-P999



The new 1994 GM code series includes 405 pages of over 100,000 active codes. GM, however, is not using all of the codes in any given year and the codes are being picked at random. To better serve the locksmith, over the next few months *The National Locksmith* is printing only those codes that have been confirmed to be in use on this year's GM vehicles. If you have a code that is not included, you can get the bitting by calling us at (708) 837-2044.

Spacing and Depths using Universal Micrometer Card #56.

	Spacing	Depth
1	.1850	.315
2	.2775	.290
3	.3700	.265
4	.4625	.240
5	.5550	
6	.6475	
7	.7400	
8	.8325	
9	.9250	
10	1.0175	

Key Profile

HPC 1200GM
Continental Code Card - #215
Cutter - CW1011
Stop - 1054R Tip Stop (Ford 10-Cut)

Framon
Cut start -.216"
Cut to cut - .092", Spacing Block #3
Cutter - FC8445
Key Clamping -Lay spacing clip F2MS552 flat on left side of vice and align from tip.

Curtis
Cam - GM6
Carriage - GM6A

KEY BLANKS

B&S	595936
Silca	GM37(EP)
Curtis	B82
Ilco	P1102
EZ	B82
Jet	B82(PH)

1994 GM Codes

MR00-MR99 & PZ00-PZ99

MR00-MR99

MR00	2211331332
MR01	2211243132
MR02	2133431132
MR03	2212121132
MR04	2211311233
MR05	2134322312
MR06	2134232444
MR07	2133424434
MR08	2212312334
MR09	2211324423
MR10	2134431133
MR11	2211234334
MR12	2212323444
MR13	2212132442
MR14	2212123133
MR15	2133434243
MR16	2134342442
MR17	2134433212
MR18	2212113422
MR19	2212321134
MR20	2134323313
MR21	2133423242
MR22	2211312422
MR23	2134334424
MR24	2212123113
MR25	2134423444
MR26	2133442423
MR27	2211211342
MR28	2211211334
MR29	2134234312
MR30	2133434322
MR31	2133442333
MR32	2211231213
MR33	2133432432
MR34	2211213213
MR35	2211334224
MR36	2134332434
MR37	2212121333
MR38	2212132443
MR39	2134243244
MR40	2134432123
MR41	2212312133
MR42	2134322134
MR43	2134223113
MR44	2211312423
MR45	2133432213
MR46	2134213313
MR47	2211334234
MR48	2134234223
MR49	2134242442
MR50	2133443434
MR51	2134313113
MR52	2134312133
MR53	2211342212
MR54	2212342342
MR55	2134231123
MR56	2211332213
MR57	2134424432
MR58	2134433134
MR59	2134424224
MR60	2134243232
MR61	2134313322
MR62	2134223324
MR63	2211322444
MR64	2134211332
MR65	2211231334
MR66	2211242334
MR67	2134434323
MR68	2212211313
MR69	2134343222
MR70	2211342243
MR71	2134231343
MR72	2133421313
MR73	2212133213
MR74	2134332113
MR75	2211331344
MR76	2212313442
MR77	2134332424
MR78	2134232312
MR79	2133244334
MR80	2134242312
MR81	2134342323
MR82	2212312432
MR83	2134324333
MR84	2134331312
MR85	2134334313
MR86	2134434232
MR87	2211312242
MR88	2211343123
MR89	2133244313
MR90	2133432113
MR91	2134243432
MR92	2212332313
MR93	2212133212
MR94	2212133113
MR95	2211313432
MR96	2134233113
MR97	2211343222
MR98	2134212243
MR99	2212244312

PZ00-PZ99

PZ00	2313123132
PZ01	2313123112
PZ02	2312331222
PZ03	2311243344
PZ04	2312342312
PZ05	2311213422
PZ06	2313213242
PZ07	2312112422
PZ08	2312423243
PZ09	2311232243

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PZ00-PZ99 & P000-P999

PZ10	2312433423	PZ60	2311224344	P008	2312312134	P058	2312211312	P108	2312334244
PZ11	2312231133	PZ61	2311213322	P009	2312324432	P059	2311342434	P109	2311323112
PZ12	2312343422	PZ62	2312123433	P010	2311313133	P060	2313212312	P110	2313221312
PZ13	2313123433	PZ63	2312234242	P011	2312312132	P061	2313124223	P111	2312342443
PZ14	2313213343	PZ64	2312122442	P012	2312442332	P062	2311331343	P112	2312243342
PZ15	2313113342	PZ65	2312311342	P013	2311233423	P063	2311323113	P113	2311223443
PZ16	2313134212	PZ66	2312113134	P014	2311243243	P064	2313212322	P114	2311244232
PZ17	2312323123	PZ67	2312131244	P015	2313131342	P065	2312242333	P115	2311334313
PZ18	2312313444	PZ68	2311312133	P016	2312124344	P066	2313121243	P116	2313124213
PZ19	2312443234	PZ69	2313113244	P017	2311243122	P067	2311312443	P117	2313213224
PZ20	2311342342	PZ70	2312442344	P018	2311213343	P068	2311221232	P118	2313221344
PZ21	2312213112	PZ71	2311223432	P019	2311242242	P069	2311213344	P119	2311343442
PZ22	2313112234	PZ72	2312234434	P020	2312331213	P070	2313221313	P120	2311213232
PZ23	2312133242	PZ73	2311213212	P021	2313221333	P071	2311242423	P121	2313131213
PZ24	2311312423	PZ74	2312324342	P022	2312343324	P072	2313122312	P122	2311243242
PZ25	2312313434	PZ75	2312332443	P023	2312121134	P073	2312234323	P123	2312422434
PZ26	2312212132	PZ76	2312422132	P024	2312212432	P074	2313113243	P124	2312213233
PZ27	2312432134	PZ77	2312133124	P025	2312132343	P075	2311223244	P125	2312134244
PZ28	2312431243	PZ78	2313213124	P026	2312434224	P076	2312313243	P126	2312442124
PZ29	2311344234	PZ79	2312431332	P027	2313113133	P077	2311313232	P127	2313221233
PZ30	2312231312	PZ80	2311343133	P028	2312334232	P078	2312133432	P128	2311322434
PZ31	2312422444	PZ81	2312133113	P029	2312322312	P079	2312443134	P129	2312343423
PZ32	2312343432	PZ82	2311234422	P030	2313213434	P080	2312321232	P130	2312233242
PZ33	2313132432	PZ83	2311321124	P031	2311332244	P081	2311342212	P131	2312233422
PZ34	2312434232	PZ84	2311213433	P032	2311312424	P082	2311242124	P132	2312423123
PZ35	2311243423	PZ85	2312422313	P033	2313221232	P083	2311324344	P133	2312231323
PZ36	2312312332	PZ86	2312113233	P034	2311234424	P084	2313131132	P134	2312334322
PZ37	2312342124	PZ87	2313112444	P035	2312121132	P085	2312423423	P135	2311344232
PZ38	2312323312	PZ88	2313113132	P036	2312342133	P086	2311221342	P136	2312331224
PZ39	2312432342	PZ89	2313112213	P037	2311322134	P087	2312323442	P137	2311221233
PZ40	2313132234	PZ90	2313112324	P038	2312321134	P088	2312421132	P138	2313132443
PZ41	2313113122	PZ91	2312112442	P039	2311334213	P089	2312312133	P139	2311221323
PZ42	2311243113	PZ92	2313112432	P040	2312433134	P090	2312131134	P140	2312431334
PZ43	2313113212	PZ93	2312242433	P041	2312213434	P091	2311224424	P141	2313124433
PZ44	2312431222	PZ94	2312443434	P042	2313121133	P092	2313113123	P142	2312124333
PZ45	2311223133	PZ95	2311242232	P043	2312442424	P093	2311311333	P143	2312213322
PZ46	2313212313	PZ96	2312443342	P044	2312321133	P094	2311323132	P144	2312133132
PZ47	2312132433	PZ97	2311223213	P045	2313121342	P095	2311332123	P145	2312432133
PZ48	2312244342	PZ98	2312443432	P046	2312231233	P096	2312323433	P146	2311342422
PZ49	2312132113	PZ99	2312334242	P047	2311334232	P097	2312311243	P147	2312131324
PZ50	2311343122			P048	2313132434	P098	2311323124	P148	2312323124
PZ51	2312433442	**P000-P999**		P049	2312324333	P099	2313211224	P149	2312324212
PZ52	2312442213	P000	2312123344	P050	2312324242	P100	2313112332	P150	2312112243
PZ53	2313112133	P001	2311321324	P051	2311343134	P101	2312242344	P151	2312123243
PZ54	2312343234	P002	2311323433	P052	2312131223	P102	2313132124	P152	2311342233
PZ55	2312113232	P003	2311343232	P053	2313131223	P103	2313112134	P153	2312442234
PZ56	2311242312	P004	2312213433	P054	2312122312	P104	2312332132	P154	2313112424
PZ57	2312232434	P005	2312324232	P055	2313212123	P105	2312322432	P155	2313132134
PZ58	2311312332	P006	2311231233	P056	2312332432	P106	2312334434	P156	2312213124
PZ59	2311342242	P007	2313211242	P057	2312122432	P107	2312331324	P157	2312343313

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P158	2312342422	P181	2312121334	P204	2312122342	P227	2311231213	P250	2311223124
P159	2312431324	P182	2311331233	P205	2312432432	P228	2312424324	P251	2311311233
P160	2312344213	P183	2312323242	P206	2311232312	P229	2312323313	P252	2311244342
P161	2312443422	P184	2311344242	P207	2313112123	P230	2312324244	P253	2312134232
P162	2312322433	P185	2312443124	P208	2312131132	P231	2311224212	P254	2312232444
P163	2312132324	P186	2312423112	P209	2311313424	P232	2312122443	P255	2311231133
P164	2312421232	P187	2311322343	P210	2311343222	P233	2311344334	P256	2311324424
P165	2312232343	P188	2312421242	P211	2311334222	P234	2311322423	P257	2312331134
P166	2311231223	P189	2312233244	P212	2312132444	P235	2312132244	P258	2312131224
P167	2312131222	P190	2311323344	P213	2312312243	P236	2313212423	P259	2312344342
P168	2311331124	P191	2313212244	P214	2313213123	P237	2312243123	P260	2312311232
P169	2312122433	P192	2312113122	P215	2313121334	P238	2312123213	P261	2313212443
P170	2311313423	P193	2312344212	P216	2311231332	P239	2312442323	P262	2313123342
P171	2312131124	P194	2312344312	P217	2312424332	P240	2313213323	P263	2311313443
P172	2312423124	P195	2311343234	P218	2313133442	P241	2312123312	P264	2313133124
P173	2311321244	P196	2312234243	P219	2311342332	P242	2312134344	P265	2312442244
P174	2311343432	P197	2311312312	P220	2312424312	P243	2311224324	P266	2313124334
P175	2312132443	P198	2311312334	P221	2312344232	P244	2311323423	P267	2311221332
P176	2312443132	P199	2313211232	P222	2313131134	P245	2313112124	P268	2312123432
P177	2313221213	P200	2313123434	P223	2312311244	P246	2311323444	P269	2312134324
P178	2313131133	P201	2311242313	P224	2313122423	P247	2313133244	P270	2313113442
P179	2312211242	P202	2313133213	P225	2313133224	P248	2312134234	P271	2312313132
P180	2313121313	P203	2313133113	P226	2311312442	P249	2312423213	P272	2313121132

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P273	2311243342	P323	2312113324	P373	2311234313	P423	2313213313	P473	2313122334
P274	2311331243	P324	2312124422	P374	2312112323	P424	2311242422	P474	2312331244
P275	2313122133	P325	2311223434	P375	2311244213	P425	2313213422	P475	2311313433
P276	2312324433	P326	2313123234	P376	2313131123	P426	2312432444	P476	2313212442
P277	2312124244	P327	2312113342	P377	2312123422	P427	2312213432	P477	2311232112
P278	2312244334	P328	2311234312	P378	2311343342	P428	2312133422	P478	2313121344
P279	2312323132	P329	2312132134	P379	2312112334	P429	2311312244	P479	2312124312
P280	2311221213	P330	2312342342	P380	2312331223	P430	2311232334	P480	2312442422
P281	2311331224	P331	2312122343	P381	2312431232	P431	2311312433	P481	2311313312
P282	2312332423	P332	2312131232	P382	2312343312	P432	2312312334	P482	2311332234
P283	2312234324	P333	2312423443	P383	2313133444	P433	2311243223	P483	2311243244
P284	2312423422	P334	2312431124	P384	2312443244	P434	2311224233	P484	2313122113
P285	2312332112	P335	2313112313	P385	2312443312	P435	2312133244	P485	2312433213
P286	2311332312	P336	2312121233	P386	2312312443	P436	2312421342	P486	2312133122
P287	2312243244	P337	2313121244	P387	2312123134	P437	2312422312	P487	2311313243
P288	2312332133	P338	2312121313	P388	2312432434	P438	2312112312	P488	2312124434
P289	2313134213	P339	2312112433	P389	2311223324	P439	2312442333	P489	2313122434
P290	2312424322	P340	2312211243	P390	2311313224	P440	2313112442	P490	2311334342
P291	2312134312	P341	2312423113	P391	2312132123	P441	2312442442	P491	2312312323
P292	2313124344	P342	2311313342	P392	2312212444	P442	2311334432	P492	2312421323
P293	2312332243	P343	2312331122	P393	2313213222	P443	2311342424	P493	2312424343
P294	2312213113	P344	2312434424	P394	2312343134	P444	2312324233	P494	2312243113
P295	2312443112	P345	2312132312	P395	2311313324	P445	2311312243	P495	2312131133
P296	2312323112	P346	2311331212	P396	2312434323	P446	2312124233	P496	2311313313
P297	2312431223	P347	2312321312	P397	2312311344	P447	2311223243	P497	2313213134
P298	2311231244	P348	2312243242	P398	2311232244	P448	2312423434	P498	2312434243
P299	2312423433	P349	2311332442	P399	2312422343	P449	2312213424	P499	2312244243
P300	2312313234	P350	2313112433	P400	2312132133	P450	2311232342	P500	2312323113
P301	2312424234	P351	2312443324	P401	2313211334	P451	2312331243	P501	2312112313
P302	2311312123	P352	2312231132	P402	2312134434	P452	2312313323	P502	2313122343
P303	2312244212	P353	2313122444	P403	2313113343	P453	2312213243	P503	2312324423
P304	2312233112	P354	2312324434	P404	2312342433	P454	2311311323	P504	2311332324
P305	2313211233	P355	2311312242	P405	2312242343	P455	2312311334	P505	2311322334
P306	2311312213	P356	2313124332	P406	2311313444	P456	2313133243	P506	2312421343
P307	2312332242	P357	2313213433	P407	2313121213	P457	2311322312	P507	2312242334
P308	2311334233	P358	2311224232	P408	2313131243	P458	2312243344	P508	2312332444
P309	2313113232	P359	2311231342	P409	2312112134	P459	2312443223	P509	2311244233
P310	2313113434	P360	2312323443	P410	2311223433	P460	2311221132	P510	2312124334
P311	2311234213	P361	2312311322	P411	2313134422	P461	2313121332	P511	2312433124
P312	2311231322	P362	2313213322	P412	2312322343	P462	2311332344	P512	2312443233
P313	2312313222	P363	2313221332	P413	2311223342	P463	2312324332	P513	2312321233
P314	2312134423	P364	2311344342	P414	2311342432	P464	2312433244	P514	2312212442
P315	2311213244	P365	2311334242	P415	2312213134	P465	2312432124	P515	2311224332
P316	2313221242	P366	2311334323	P416	2312344242	P466	2312132242	P516	2312443442
P317	2313122344	P367	2311331312	P417	2312311312	P467	2312313443	P517	2311332124
P318	2312323422	P368	2312434432	P418	2311243124	P468	2313132113	P518	2312431313
P319	2313123213	P369	2312322443	P419	2312123234	P469	2312242434	P519	2311232242
P320	2312131122	P370	2312334344	P420	2311321332	P470	2311243224	P520	2312312324
P321	2311243432	P371	2312432422	P421	2311234322	P471	2311223423	P521	2312343112
P322	2312231244	P372	2312434342	P422	2313112323	P472	2311213213	P522	2311243442

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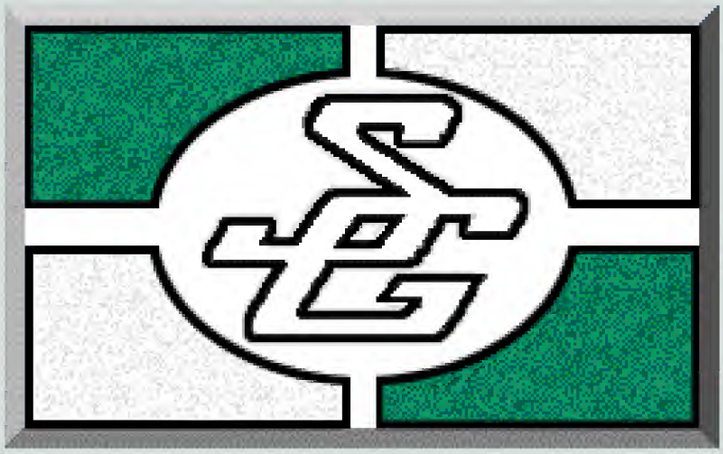
P523	2312123313	P546	2311342433	P569	2312312313	P592	2312113243	P615	2313212422
P524	2312422342	P547	2311313322	P570	2311343422	P593	2313122432	P616	2312433113
P525	2313212334	P548	2312232342	P571	2312312242	P594	2311323432	P617	2311213242
P526	2312443113	P549	2312423134	P572	2312231122	P595	2312242313	P618	2311231123
P527	2311234342	P550	2311331323	P573	2311321123	P596	2312342334	P619	2312334323
P528	2313122132	P551	2311334324	P574	2313212424	P597	2312312123	P620	2312131233
P529	2312121232	P552	2312131332	P575	2312312432	P598	2311242213	P621	2312421123
P530	2311332133	P553	2312212433	P576	2312432243	P599	2311233134	P622	2312332123
P531	2311331133	P554	2311224213	P577	2312312444	P600	2311223132	P623	2311221312
P532	2312123434	P555	2312422133	P578	2312332342	P601	2313122123	P624	2313213243
P533	2312124234	P556	2313131242	P579	2312233243	P602	2311234432	P625	2313212434
P534	2311343242	P557	2312324312	P580	2313113322	P603	2311242434	P626	2312424242
P535	2312421134	P558	2313134423	P581	2312231123	P604	2311233444	P627	2312423244
P536	2312421312	P559	2312131323	P582	2313112242	P605	2311213432	P628	2312243243
P537	2312434324	P560	2312442432	P583	2313131313	P606	2311243424	P629	2313113312
P538	2312432423	P561	2313113134	P584	2311324322	P607	2312234342	P630	2312243434
P539	2311344322	P562	2312334313	P585	2312233123	P608	2313132424	P631	2311213423
P540	2313122433	P563	2311242113	P586	2311343113	P609	2311212444	P632	2312321324
P541	2312321343	P564	2311232444	P587	2312431242	P610	2312134342	P633	2312113123
P542	2311323242	P565	2312332122	P588	2312322132	P611	2311342313	P634	2313132433
P543	2312132423	P566	2312334432	P589	2313133112	P612	2312233113	P635	2312442322
P544	2312211343	P567	2312133442	P590	2311224243	P613	2312122133	P636	2312311242
P545	2311342443	P568	2312113212	P591	2312213443	P614	2311331134	P637	2313133212



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P000-P999

P638	2312342123	P688	2312323243	P738	2311213123	P788	2312243233	P838	2313324244
P639	2312244322	P689	2311242424	P739	2312431344	P789	2311231224	P839	2313242434
P640	2311232124	P690	2312442342	P740	2312423122	P790	2312211233	P840	2321313444
P641	2312312434	P691	2312313422	P741	2311233243	P791	2311221123	P841	2322113433
P642	2312324322	P692	2311213132	P742	2312432113	P792	2312231334	P842	2322434424
P643	2311234243	P693	2312442112	P743	2311223442	P793	2313134242	P843	2321131242
P644	2311213233	P694	2312121242	P744	2311323224	P794	2311312134	P844	2313242232
P645	2312324234	P695	2313112244	P745	2313134224	P795	2312243312	P845	2321123244
P646	2312343242	P696	2312112332	P746	2313213424	P796	2313113234	P846	2323122344
P647	2313213423	P697	2312434212	P747	2312112324	P797	2311213124	P847	2321323423
P648	2312124313	P698	2312213234	P748	2312131212	P798	2311233113	P848	2322312334
P649	2312311233	P699	2312334243	P749	2312213132	P799	2312432242	P849	2313233113
P650	2312131213	P700	2312113344	P750	2311242344	P800	2321313342	P850	2321342113
P651	2311332423	P701	2313113223	P751	2311213443	P801	2313342244	P851	2323113444
P652	2311334312	P702	2312321242	P752	2312121312	P802	2322443424	P852	2313442332
P653	2313121242	P703	2311313122	P753	2312234212	P803	2322432313	P853	2313242124
P654	2312424243	P704	2312211344	P754	2312312424	P804	2321242343	P854	2313344212
P655	2311324334	P705	2312211313	P755	2312123244	P805	2321323324	P855	2321313344
P656	2312334324	P706	2312122434	P756	2312443133	P806	2313312422	P856	2313344323
P657	2313113242	P707	2311334212	P757	2312433242	P807	2313342443	P857	2321133442
P658	2312434344	P708	2312443243	P758	2312211322	P808	2321132213	P858	2313433423
P659	2311332122	P709	2311324244	P759	2311324433	P809	2323113442	P859	2313242243
P660	2313211333	P710	2311332213	P760	2312124323	P810	2313443442	P860	2322123434
P661	2313123224	P711	2312313342	P761	2311334422	P811	2322424433	P861	2313243422
P662	2311331313	P712	2312313213	P762	2311242133	P812	2321312124	P862	2321313243
P663	2312321313	P713	2311332134	P763	2312423324	P813	2313223443	P863	2321232313
P664	2311332443	P714	2311324323	P764	2312334342	P814	2323112113	P864	2322113312
P665	2313221323	P715	2312133112	P765	2313124233	P815	2313342434	P865	2321244212
P666	2311342112	P716	2312231322	P766	2311244234	P816	2321211324	P866	2313422424
P667	2312312322	P717	2311232324	P767	2312431224	P817	2313423344	P867	2322133423
P668	2312123242	P718	2312234312	P768	2313121232	P818	2322432334	P868	2321233432
P669	2313121233	P719	2313211332	P769	2311223312	P819	2321322442	P869	2321242433
P670	2313133242	P720	2311321334	P770	2311331222	P820	2321313443	P870	2321244312
P671	2313124323	P721	2312234232	P771	2313212234	P821	2322312312	P871	2313343422
P672	2312442243	P722	2312123212	P772	2312343233	P822	2321133123	P872	2321122432
P673	2311311243	P723	2312331242	P773	2312123444	P823	2322313342	P873	2313242132
P674	2312434423	P724	2312343223	P774	2312421334	P824	2313234322	P874	2313243233
P675	2312132124	P725	2312131342	P775	2313213432	P825	2321131134	P875	2321232113
P676	2311243123	P726	2312432344	P776	2312212312	P826	2322432312	P876	2313224234
P677	2311233212	P727	2311324232	P777	2312133212	P827	2322312134	P877	2321342234
P678	2312234344	P728	2312434312	P778	2312432312	P828	2322434244	P878	2321342422
P679	2313131224	P729	2312422113	P779	2312312113	P829	2321312234	P879	2321123133
P680	2312334422	P730	2312321323	P780	2312344234	P830	2313431224	P880	2321234334
P681	2312124424	P731	2312123423	P781	2312113442	P831	2313431223	P881	2313233444
P682	2312344233	P732	2312233124	P782	2312342313	P832	2313322313	P882	2313311344
P683	2312331233	P733	2312334423	P783	2313132133	P833	2313432134	P883	2323112312
P684	2311232423	P734	2312424424	P784	2311242432	P834	2313423244	P884	2321124343
P685	2312313133	P735	2311313134	P785	2313212243	P835	2313431134	P885	2321311343
P686	2312443222	P736	2311323434	P786	2312443423	P836	2321324434	P886	2321242134
P687	2311321322	P737	2313123313	P787	2311231134	P837	2321313424	P887	2313223324

1994 GM Codes

P000-P999

P888	2322113242	P910	2322434334	P932	2313324432	P954	2313243224	P976	2321121242
P889	2321243124	P911	2313342123	P933	2321213113	P955	2321231242	P977	2321244322
P890	2321334212	P912	2313424323	P934	2322434422	P956	2322324434	P978	2313443423
P891	2321313212	P913	2313432423	P935	2313424212	P957	2313424424	P979	2321321333
P892	2313243232	P914	2313244212	P936	2313342232	P958	2313434423	P980	2313324312
P893	2321123212	P915	2322421312	P937	2321242332	P959	2321213443	P981	2322131344
P894	2322432434	P916	2323121343	P938	2321323443	P960	2313343244	P982	2322313122
P895	2322432112	P917	2322313312	P939	2321331313	P961	2322131322	P983	2321342333
P896	2313224323	P918	2322311233	P940	2322113444	P962	2321133422	P984	2313423433
P897	2313233212	P919	2322132442	P941	2321132442	P963	2313323444	P985	2321342133
P898	2322312133	P920	2313442344	P942	2321121233	P964	2313431212	P986	2322342112
P899	2322121333	P921	2322131212	P943	2322313432	P965	2321231132	P987	2321212312
P900	2313434434	P922	2322442332	P944	2321323234	P966	2322133212	P988	2321323113
P901	2322443432	P923	2321323422	P945	2322124434	P967	2321343313	P989	2322424333
P902	2321334242	P924	2313242423	P946	2321234244	P968	2321243132	P990	2313323113
P903	2313442442	P925	2322421133	P947	2321334223	P969	2322113123	P991	2313324322
P904	2313443132	P926	2321342213	P948	2313322434	P970	2322323312	P992	2322434213
P905	2313223243	P927	2323123112	P949	2321132133	P971	2323113232	P993	2313313243
P906	2322443434	P928	2321313323	P950	2321212133	P972	2322343132	P994	2313431124
P907	2321231324	P929	2322131124	P951	2322123432	P973	2322321334	P995	2313323123
P908	2321233212	P930	2322423134	P952	2321313232	P974	2313431232	P996	2321343222
P909	2321242133	P931	2321212432	P953	2313324213	P975	2313342132	P997	2321321344
								P998	2321313423
								P999	2321311324

TRANSFERRING CONCEPTS

Continued from page 12

The other way to transfer the readings is to move the template to the drop in position that we have determined. After determining the drop in position, we rotate the template so that the hole,15, is over the new position. One now dials the same combination we got through reading through the hole to 15 at the new position.

It is easy to get the template in the proper relative position because we originally marked the safe door for the 0, 25, 50 and 75 position. If we move the template 25 numbers, then relative new numbers will be aligned on our four marks.

First time, the template was aligned at 0, 25, 50, 75. By moving the template so that 15 is at the drop in, the new template numbers under our marks are at (unfortunately) in this example 25, 50, 75 and 0, but with the 25 at the old 0 or 12 o'clock mark.

Both methods work and take practice. By marking the original template position on four axis, we can move the template and still have a perfect relative reading of our combination. I use both methods, and even a third which will be discussed at another time. Be careful with the addition and subtraction method. Silly mistakes have been made by a simple addition error that have cost time in safe opening. Transfer carefully and Prosper!!!!

BEGINNER'S CORNER

Continued from page 34

Place the plug in its casing and push it into place. Put the screw back in, and tighten in down. I want to give Dan Howard of A-Accurate Lock Service Inc. credit as he is a locksmith who is interested in locksmith and consumer education. He has helped me with both instruction and education.

In the September 1993 issue of *The National Locksmith*, I wrote about reconditioning a Kwikset handle set. Dan had given me instruction on the reconditioning, and when the next handle set came in, I was able to breeze through it without trouble. One of his instructions was to drill through the rear of the case and let the replaced pin protrude through the case. This prevents the operating lever from jumping off the pin if it becomes worn.

I thought it would be a neater job if a hole was not drilled, so instead of drilling, I filed the pin down so it would fit snug behind the case.

This was not correct, as Dan pointed out, as the case could warp with heavy use, and the lever could slip off the pin. With the hole in the case, the lever will never come of.

The moral of this story is that when your instructor has about 20 years more experience than you do, you should listen to his advice.

THE LIGHTER SIDE

Continued from page 53

"How's that?"

"If you must know, I burned up one of my doors, had to call out old Marty Martinson and his antique fire truck to keep the whole house from going up."

"You're kidding. What in the world happened?"

"I hooked up my big drill with the hole saw attached and went to trying to cut a hole in that solid oak door of mine, just like you said, but it wouldn't do any good. All I got was burned wood and a lot of smoke. I stopped and checked the saw teeth, and they seemed sharp enough, so I tried again. I was determined to do the job without having to call you about it. Well, the next thing I knew, the door really started smoking, like it was about to catch fire. Luck for me, Marty had driven over in that old fire engine he's been restoring, and he was watching. He ran for the hose and sprayed water over the door to cool it down."

"What in the world...?"

"Well, I hate to admit how stupid I was. You even warned me, remember? But I didn't pay any attention."

Don was puzzled. "I don't remember," he said.

"You told me not to run the thing backwards, and that's just what I did. Somehow, my drill was set on reverse, and I was just burning a circular groove into my door with that old hole saw blade, instead of sawing a hole."

Don decided not to comment.

"My wife was some kind of upset, when she saw what I'd done to her beautiful front door," Brumly continued. "I promised her, next time I'd let a professional do the work. So, when the replacement arrives, I'll be giving you a call." He shook his head sadly, and his shoulders slumped. "Do you have any idea how much that new carved, solid oak door is going to set me back?"

Don shook his head sympathetically and tried not to smile.

BITS & PIECES

Continued from page 76

Having trouble cutting the GM AlphaTech ignition key used on the 1991 and up Cavalier, Grand Am, Skylark and Achieva using the Curtis 15 cutter?

Don't be surprised. Although several cam and carriage changes have been made to account the key's inconsistencies, often only one side of a key will work when cut by code on this machine.

When cutting the key, the head of the cutter can tilt back slightly yielding a cut with an inaccurate space and flat. Should this occur, Curtis recommends holding down the head of the cutter while cutting the key. This allows straight and proper cutting of each cut on the key.

The correct carriage for the older style, grooved keyway is 4A, the new non-grooved blank uses the 4B. In both cases use the GM4 cam.

MOVING?
Please notify us six weeks prior to your move. Send your name, old address, and new address to: TNL, Address Change Dept., 1533 Burgundy Pkwy., Streamwood, IL 60107

SUBSCRIPTION QUESTIONS?
Please call Nancy at our Customer Service desk, (708) 665-0540.

SHOP TALK

Helpful questions and answers

Shop Talk answers readers questions on any locksmith related topic. Only letters judged to be of general interest will be published. We regret that we cannot answer individual letters. Because of the volume of mail, only those questions answered in the magazine will receive answers. Send your questions to *Shop Talk*, ***The National Locksmith,*** *1533 Burgundy Parkway, Streamwood, IL 60107.*

Q: *A growing part of my business is in older cars. Many of my customers want the old keys and locks for their cars. Where can I get Briggs & Stratton key blanks for 50's and 60's autos? Also, where can I get parts and information on pre World War II auto locks?*

Ralph Waugh
Ohio

A: As always, Ralph, when it comes to older and antique vehicles, getting information, parts and keys can be difficult and sometimes impossible.

In fact, Jim Dravec of Allied Locksmith Supply in Youngstown, Ohio, (800-544-2102) and distributor of Briggs & Stratton, Auto Security Products and All-Lock automotive locks, says that not only does the lack of application catalogs and part numbers make the job difficult, but that there is often more than one part or key used for any given year, make and model. If parts are available, many times they are superseding parts that need some modification before they will fit or work.

If parts are not available Jim suggests trying salvage yards, car clubs, auto restoration clubs and their related magazines. Many discontinued and hard to get parts can be found through these sources.

If keys are needed, first try a B&S distributor and see if the blanks can be ordered (if they are not already in stock). If a working key is needed immediately, use a key catalog and look for blanks that have similar keyways that may fit the lock. Use this key until an original blank can be obtained.

Q: *I have an old Diebold Vault I am trying to repair and am having trouble getting some of parts. The dial*

on the door is dated 1871, and the doors were installed in 1908. I've called Diebold but they say they don't have the parts.

Can you help?

Tavo
California.

A: I consulted with Dave McOmie on this one, Tavo. What is available and where you get it from is going to depend on what you want to replace. Dave states that there are basically two types of locks that will be found on this safe, both made by Peerless. One has the date "May 23, 1871" on it while the other will have the two dates " February 1, 1870" and "May 23, 1871" on it.

One of these locks will have pegs coming out of the knob, this is the anti dynamite lock. The other lock has no pegs and is a square bolt lock.

If it is lock parts you need to replace, Dave suggests you contact Harry Miller through Lockmasters. Their phone number is 606-885-6041.

If it is any other portion of the vault (i.e. boltworks, etc.), these will have to be fabricated.

Q: *I am currently trying to finish my Foley Belsaw correspondence locksmith course. I would like some advice on gaining more experience and training so that I can feel confident about job hunting and any work I do as a locksmith. Any information you can provide is appreciated.*

Delmer Southall II
Florida.

A: One of the best things a beginning locksmith can do to gain not only more training but to also develop relationships with more experienced locksmiths is to join and participate in a local locksmith association.

Most associations provide detailed training courses or seminars in all areas of lockwork. This is good for gaining more knowledge and some experience with the different types of locksmithing you should know.

Building relationships with the other locksmiths can provide you with an invaluable source of information and help when you find you're called to a job with which you are unfamiliar.

The names and numbers of associations in your area can be found in *The National Locksmith's* Directory Issue (see the December 1993 issue).

Another good source for training are the classes offered by the Associated Locksmiths Of America (ALOA). For information on this organization and what they can offer, call 214-827-1701.

Further education can be gotten from other locksmith schools as well. Such schools as HPC Learning Center and Lockmasters can help you develop basic as well as specialized locksmith knowledge and skills. For names and numbers on the schools and what they offer, also refer the The National Locksmith's Directory

Another piece you can add to your training arsenal is *The National Locksmith* and other publications by The National Locksmith and National Publishing Co. Manuals of auto locks and servicing, door hardware, door closers, door knobs, motorcycles, and safes, as well as a Basic Masterkey Correspondence Course are available and offer just what you're looking for.

TEST DRIVE

Taking Industry Products for a Spin Around the Block

BRIGGS & STRATTON'S SIDEWINDER

PRODUCT: Briggs & Stratton Sidewinder VATS mini-decoder is available through Briggs & Stratton distributors. Suggested list is $299.98 for the kit and $180.01 for the decoder only.

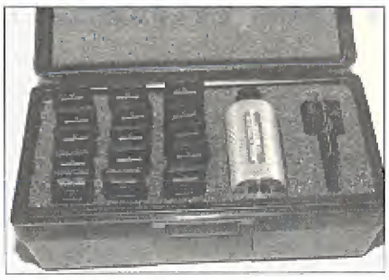
PRODUCT DESCRIPTION: Used for generating General Motors VATS system keys, the Sidewinder is a compact and durable tool that requires no batteries or wires.

The Sidewinder decoder can be purchased separately, part #597011, or as a kit, part #702627. The kit includes the Sidewinder decoder, five key adapters (#595872) and 15 (one each) VATS keys all in a plastic carrying case (#597012).

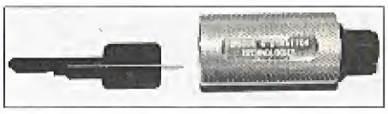
PRODUCT SPECIFICATIONS: The Sidewinder is a small, alloy steel encased rotary switch providing all the VATS resistance values, and works in conjunction with the single sided Briggs & Stratton key adapters. A double-sided key adapter will be available at the 1994 ALOA Convention for the 1995 GM double-sided key using the VATS system.

FRIENDLINESS: The Sidewinder tool is extremely easy to use, and requires no instructions. Simply place a cut adapter key into the Sidewinder tool, select the resistance value and place it in the ignition.

FEATURES: The Sidewinder kit includes all necessary components for interrogating a VATS system. The adapter keys, included in the kit, are made of plastic and two wires form the contact between the Sidewinder tool and the contact points in the ignition lock.



1. The Sidewinder kit complete with decoder, adapter keys and all 15 VATS keys.



2. The wire probes of the adapter key must be gently inserted into a connector inside the decoder.

3. The adapter key and decoder ready to go.

DESCRIPTION: VATS mini-decoding tool kit.

COMMENTS: Allows you to try all VATS resistance values.

TEST DRIVE RESULTS: Doesn't have a timer, so you must keep time for waiting periods between trials, but is small and very user friendly.

The VATS key value is selected by turning the rotary switch at the top of the Sidewinder tool.

COMMENTS AND SUGGESTIONS: The Sidewinder tool is easy to carry and store on a truck and is not prone to the problems that affect the larger battery operated units. In fact, its small size allows it to be carried in a pocket, eliminating the need for packing up and putting away the tool when temporarily leaving a serviced vehicle.

This tool does not (and isn't created to) perform the diagnostics that are part of the larger electronic units. It is meant to be a simple tool that allows the locksmith to try all the VATS resistance for generating a VATS key.

Because only two parts are needed to operate this tool (the Sidewinder and the adapter key) it is extremely easy to use. In our unit the adapter key inserted into the Sidewinder in only one direction. While the head of the key fit into the tool in either direction, the two contact wires properly aligned with the Sidewinder's connector in only one direction. Trying to force the key into the tool may damage the key or the connector.

The VATS resistance value is stamped on the top of the tool around the rotary switch. Although easily visible in daylight, making them a little more visible under bad lighting conditions would help.

Also, because the small size of this unit does not allow for a clock/timer, a watch or the vehicle's clock must be used for time-out period between each key trial.

CONCLUSION: The Sidewinder is an effective, compact tool that simplifies VATS key generation.